

## Public service lures sociologists

by Simon Midgley

Most of the sociologists and psychologists who left university with a first degree during the years 1972-76 to enter permanent employment went into public service. This is one of the findings of a survey by the Department of Employment's unit for manpower studies, into the first career steps of British social science students.

The examination of the first destinations of economics, geography, psychology and sociology graduates reveals predictably that most of the economists took jobs in industry or commerce—although, surprisingly perhaps, rather more of them went into commerce than industry.

Geographers were split fairly evenly between public service employers and those in industry and commerce, while the smallest proportion from each discipline went into employment connected with education.

Of the 44 on 51 per cent of economists who went into the broad commerce group the majority went

into accountancy (the proportion increasing from 21 to 31 per cent of the total over the five years) and about half the rest went into banking and insurance.

More unexpected perhaps is the fact that over these years a larger proportion of economists entered buying, marketing and selling occupations (between 7 and 11 per cent) than went into advisory work (between 3 and 6 per cent).

Of the four disciplines considered by the unit geography supplied the highest proportion of first degree graduates each year to the civil service (between 8 and 16 per cent), although the number of psychologists entering the civil service rose from 15 (6 per cent) in 1972 to 33 (11 per cent) in 1976.

Well over 50 per cent of sociologists and over a third of psychologists went to work for local authorities/hospital services. Of these sociologists went mainly into social work or clinical psychology.

Management, administration and general traineeships were of lesser

importance but nevertheless together attracted 9 to 14 per cent of sociologists and 9 to 16 per cent of psychologists. Many psychologists also went into buying, marketing and selling and, particularly during the latter part of the period, into personnel work.

Some 17 to 28 per cent of first degree geography graduates entered employment took up management, administration or general traineeships and 13 per cent rising to 23 per cent in 1976 went in for financial work.

Environmental planning occupations were popular with geographers until 1976 when numbers dropped sharply. This, the authors suggest, may be due to the effect of economic measures made by local authorities in their recruitment programmes for staff in town and country planning departments as a result of the general economic situation.

"Social science students. An examination of the first steps in their careers" is published in the Department of Employment Gazette, January, 1978.

## ILEA will redistribute £100,000 grant cuts

by Sue Reid

The £100,000 due to be cut from the block grants of Central London and Thames polytechnics by the Inner London Education Authority for failing to keep their foreign enrolments static in the current year will be redistributed among other London polytechnics and colleges.

Mr Ellis Hillman, chairman of the authority's further and higher education sub-committee, which made the controversial decision, said at its meeting last week that the cuts would be "redistributed" elsewhere.

This move was agreed, he claimed, at the sub-committee meeting. Mr John Bevan, the authority's education officer, said the authority's decision to cut the overseas students' fee and the sub-committee's decision to cut the cash will be "redistributed" elsewhere.

If the proposed cutbacks gain approval at the next sub-committee meeting the college directors will be told that the £100,000 grant reduction cannot be "reinstated" from maintenance grant resources or from any other sources. Both colleges have cash reserves.

Meanwhile both Central London

and Thames are planning to go to the authority about the proposal to cut their block grants, but ward as a surprise move during the sub-committee's meeting.

A Thames polytechnic spokesman said an emergency meeting of the college's court of governors was likely to be called and it was pointed out that although the college had increased its overseas numbers by 71 over last year, proportion of the total still stood at 16.8 per cent, 4 per cent lower than the ILEA average.

Central London is also planning to write to the ILEA stressing the plan for a freeze on staff numbers was only agreed with the college's final March "far too late" effect any control on numbers.

Mr Bevan said the sub-committee had agreed to cut the overseas students' fee and the sub-committee's decision to cut the cash will be "redistributed" elsewhere.

## Tory students launch campaign to ditch general meetings

by Peter David

The Federation of Conservative Students is to launch a national campaign to reform the constitution of student unions and put an end to general meetings as the main union decision-making body.

Announcing the campaign this week Mr David Wilks, chairman of the 20,000 member federation, said Conservative students would seek to replace general meetings with student representative councils, elected by secret ballot.

He said: "General meetings in many colleges are easy to manipulate by small groups who endlessly challenge the order paper and interrupt serious discussion with constitutional wrangles and procedural motions. Thus meetings are made only hours and decisions are made only in the small clique who have sat it out at the end."

The FCS intends to use its 200 associations in universities and colleges to introduce constitutional changes setting up representative assemblies as the sovereign policy-making body in student unions. Members of the assemblies would be elected by proportional representation in a cross-campus ballot "so that the largest number of students

possible can participate in the electoral process". To support its case for reform the FCS this week published an analysis of the way student decisions were chosen for the National Union of Students once in Blackpool. It shows a 15 per cent of institutions elected by NUS delegation by holding a campus ballot. In 104 colleges universities the delegation is elected at general meetings, and 80 institutions the student council appointed delegates.

According to Mr Wilks, a survey indicated that the majority of delegates who attended the 1977 conference were elected by a proportion of students in a campus ballot.

At Manchester Polytechnic, he claimed, the NUS delegation is elected by a campus ballot of 70 students. The polytechnic has over 5,000 full-time students but no quorum arrangement in general meetings. And at the College of All Saints in London, the NUS delegation is elected by a campus ballot of 70 students. The polytechnic has over 5,000 full-time students but no quorum arrangement in general meetings. And at the College of All Saints in London, the NUS delegation is elected by a campus ballot of 70 students. The polytechnic has over 5,000 full-time students but no quorum arrangement in general meetings.

## Select committee visits Leeds

Members of the Commons Select Committee on Science and Technology visited Leeds University yesterday to see how the university has geared itself to meet national needs.

The university issued the invitation for the visit to the publication of the committee's third report in November, 1976. The report suggested changes in scientific and technical higher education to bring it more in line with social and economic needs.

It wanted the training of engineers and applied scientists for employment in industry to be given much higher priority and said that universities and engineering institutions should collaborate more, involved in education at all levels.

Yesterday, Leeds showed the committee chairman, Mr Arthur Palmer, some of the work it is doing which contributes to industry. A group of industrialists was also invited for the day.

## AUT pay deadlock

Representatives of the Association of University Teachers, the academics and Government officials failed to agree this week on university teachers' pay settlement. Committee B, which is chaired by Mr Edward Simpson, deputy secretary at the Department of Education and Science and which includes members of the AUT and the University Authorities Panel, met on Monday morning.

## NEXT WEEK

Denys Hay on Sir Thomas More, Lancashire's Open College. Simon Midgley on the training of Britain's engineers. Professor Richard Gregory views "The Self and its Brain". Peter Scott interviews T. Weaver.

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## Alternative technology centre set up

by Robin McKie  
Science Correspondent

A centre for the study of alternative technology, based at North East London Polytechnic, was launched this week.

The new project has been set up through a first-year £7,000 grant from the Joseph Rowntree Charitable Trust and is also being funded by the Lucas Aerospace Combine shop stewards' committee as part of their bid to halt workforce cuts at their factories.

It is planned that students at the centre would help in the design of engineering projects developed by the combine's alternative corporate plan. This scheme is promoting products which could be made by Lucas Aerospace, rather than cutting down their workforce because of lack of orders.

The £7,000 for the Centre for Alternative Industrial and Technological Systems will be used to pay the salary of its coordinator, Mike George, and provide money for secretarial work and travel. However, other backers are being sought and it is also hoped that research council and Government departments will finance individual projects.

The centre will start operating from the beginning of the next academic year and about 12 final-year students will be involved with projects that will account for about 15 per cent of their studies.

Mr George said the centre is a focus of the active interest in Lucas and the political situation there. There has been plenty of collaboration between polytechnics and management before but nothing like this.

It is also hoped that some of the centre's work will be used to encourage small-scale co-operatives in the local and dean of engineering at NELP, Jim Proctor, said the centre was part of the polytechnic's growing links with the East End community.

Some of the projects already set up by the Lucas corporate plan, which will serve as the basis for the students' work, include a hybrid electric-internal combustion power pack. This unit consists of a small engine which runs at constant speed and maximum revs. This is used to drive a generator which charges the batteries that run the pack's electric engine.

The secretary of the Lucas combine committee, Eric Scarbrow, claims this complex design results in an engine which uses 80 per cent less fuel and runs at "library level" noise.

Other projects include the development of a road-rail bus which pneumatic tyres capable of running on track and a heat pump powered by natural gas instead of electricity. The centre aims to use its intellectual and material resources to help solve problems of social value.



## The Oxford sweepstakes

St Catherine's College, Oxford, is to take part in a weekly lottery scheme run by Ladbrokes for a number of national charities, local authorities and sporting organizations. The object is to raise £200,000 for ventures which would be difficult to fund by other means. These include commissioning a set of tapestries for the college hall, new sports facilities, and the creation of a research fund.

The college will join in the lottery with such bodies as the National Society for the Mentally Handicapped, Make Children Happy and the Royal National Institute for the Blind.

The Master of St Catherine's College, Lord Bullock, announcing the

scheme, said: "If lotteries are to be held at all, I think Parliament was right in allowing them to be used to raise money for charities, educational, cultural and recreational purposes. I have been convinced in this view by my recent experience as chairman of the trustees of the Tate Gallery where a lottery helped to raise the funds with which to keep two Stubbs masterpieces in the country."

The trustees subsequently decided to take part in the scheme run by Ladbrokes. In order to fund one other work of art for the nation and the same arguments which convinced them have convinced my colleagues at St Catherine's."

## Polys unhappy as Oakes committee winds up report

by Peter David

The Oakes committee on the management of colleges and polytechnics is to make another attempt to agree its final report next week amid a flurry of last-minute arguments about its wording and growing confusion about the status of the national body it proposes to create.

One of the major sticking-points at earlier meetings of the committee—the composition of the national body—has been resolved through a compromise formula giving local authorities up to 10 members on the 25 to 30 member body in place of their original seven.

Officially the local authority group will consist of eight members from English local authorities and one from Wales. But there is also an informal understanding that the ministerial appointees nominated to the body to represent "other interests" will include a local government treasurer.

Next week's meeting is nevertheless likely to be characterized by fierce argument about the wording of the report, as the warring factions jockey for position in the public debate that will follow its publication.

The polytechnic side, in particular, is thought to be refusing to sign unless it is made clear in the report that the committee's terms of reference made it impossible for members to propose a substantial diminution of local authority control over polytechnics.

There is also continuing disagreement about whether the national body should have executive or advisory status, and what its precise relationship should be to the Department of Education and Science and the local authority associations.

The local authority associations, for their part, have given their representatives on the committee permission to sign the report, but have reserved the right to challenge its recommendations when they are published.

Meanwhile Dr Keith Thompson, MP for Ripon and a junior Conservative spokesman on education, last night repeated his earlier warning that a Conservative government might refuse to implement the report.

He told a meeting of the Conservative parliamentary education committee that it would have been better to create a university-style grants committee than set up a national body "which is merely a reflection of those same vested interests who have stumbled for a year on the Oakes committee".

"Absolutely resolute" in terms of reference, he said, had prevented the committee from asking whether the total withdrawal of local authorities from the control of polytechnics would have been a better solution.

"In the present pattern the local authority role has been handled in a negative and restrictive, whether in relation to course development, control of non-teaching staff, or the raising of funds. After Oakes this will still be the case."

"In order to retain some vestige of control, the local authorities have insisted that all course proposals should be vetted by their committees before being submitted to the national body."

"What an absurd perpetuation of the present cumbersome procedures, which have resulted in the polytechnics, supposedly created under public control in order for them to be quickly responsive to changing demands, taking over twice as long as a university in getting a new course off the ground."

## PNL sociology degree kept on trial

by Simon Midgley

The academic ethos in the Polytechnic of North London's department of sociology is severely limiting the opportunities for free and open discussion of course content and organization according to some members of staff.

This is outlined in a letter—from the Council for National Academic Awards—to the polytechnic, announcing that "current problems" mean that extended approval of the BSc (Hons) sociology course can only be granted for one year.

Mrs Cynthia Higgs, CNAA registrar for business and social studies, said in her letter to Mr Terence Miller, the polytechnic's director, that the Sociological Studies Board has only agreed to extend approval for one further year from September, 1978.

The board was hopeful, she said, that following a successful resolution of the current problems of the course, the remaining three-year approval to the full five-year term would be possible.

"I am asked to tell you that members were disturbed to learn of the academic ethos currently prevailing in the department which was understood to be such that the opportunity for free and open discussion of course content and course organization was seen by some members of staff to be severely limited."

"While members did not feel that the academic environment of the course had deteriorated to a state inappropriate for a programme of study leading to the council's award, they were strongly of the opinion that the environment and organization of the course and their effect on the content of the degree did give cause for serious concern which members would not want underestimated."

Members have welcomed suggestions for a partial course review and revision and would not consider further reviews that might be necessary as a result of the partial revision inappropriate.

Mrs Higgs says that the board expected that consideration of the course syllabuses should focus on the balance of the course in terms of plurality of perspectives offered, internal coherence, progression and the opportunities offered for students' academic development.

Members were aware, she said, that some staff members have felt that their views on course content in relation to students' academic development have not been fully heard.

Mr Noel Furry, the new incoming head of the department who takes up his appointment in April, said that if some members of the department felt the course was unbalanced then it was his duty to ensure that "all voices are heard and that a proper balance in the course is maintained."

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## New professor blames the universities

by Judith Judd

University education of the school curriculum has deprived working class children of a fair chance in education, Professor Peter Hurrell said in his inaugural lecture this week.

Professor Hurrell, professor of psychology at City University, said: "It is academic education and not education based on skills which maintains the present rigidities of our social class system."

"A skill-based education would enable people to use and develop their abilities. Academically based education has resulted in little change in the proportion of working-class students in higher education in the last 25 years."

In an attack on the academic bias of education, he blamed the universities for the poor image of people who made things.

They had controlled the curriculum in schools through their hold on the examination system. Early specialization, too, had resulted from "the universities' beneficial influence on the curriculum."

The division of knowledge into arts and science had helped to make most people spend their lives doing "making things or helping to make things work for the benefit of others."

He did not want so-called artists and so-called scientists to talk to each other a bit more, said C. P. Snow had suggested. "I want the whole apparatus of academic education including the arts and science distinction, to be dismantled; they are, after all, only the distinctions made by university scholars for their own convenience."

Professor Hurrell said that some of the attempts to further professionalize the doing and making occupations might reinforce the present nature of the education system.

"Producing super-graduates who have tackled a yet more academically demanding degree course in certain selected centres of excellence will likely create yet another hierarchy in the academic hierarchy."

Another reason for not trying to professionalize the skills of making and doing in order to attract young people was that students were not particularly motivated by salary and status.

## Birmingham dean

Professor Owen Wado has been appointed new dean of medicine and dentistry at Birmingham University. He will succeed Professor Brodie Hughes whose term of office expires in September.

Professor Wado is an expert on drug safety control and has been head of the department of therapeutics and pharmacology since 1971. He was educated at Repton, Cambridge and University College Hospital, London. After lecturing at Birmingham, he was appointed to the newly created White chair of therapeutics at Queen's University, Belfast.

## What sort of children do we want?

What are our priorities for them? The acquisition of basic skills or the development of social and moral values?

In New Society, out today, John Gray of the Centre for Educational Sociology, University of Edinburgh, weighs up the respective claims made for formal and informal teaching methods.

# NEWSOCIETY

OUT TODAY 25p

## Tories call for changes in science policy

by Robin McKie

The Conservative Party has called for urgent changes in Government science policy and education to improve the quality and numbers of trained engineers in industry.

In a report, *Science, Education and Industry*, John Ranelagh, of the Conservative Research Department, argues that the country can no longer afford to neglect "the importance, status and prestige" of science. A new approach to science is needed if Britain is to remain a successful industrial nation.

"The fundamentals must continue to be taught, but we can no longer support curiosity-motivated research more than is necessary to keep this teaching alive," he says.

Ranelagh calls for greater use of the Open University's resources of books, television and radio programmes could be used by teachers in other higher education institutions and several first-year courses could help at schools and on teacher-training courses, particularly with chemistry and mathematics.

Serious consideration should be given to the re-creation of the office of Minister for Science or to the possibility of appointing a Minister of State responsible for science within the Department of Education and Science.

Ranelagh believes that teaching has concentrated too much on theory and not enough on the practical application of design to everyday engineering and everyday problems. Engineers are required to translate theory into practice, yet we are employing and training more accountants, social scientists and pure scientists.

Science simply does not reach engineering, he points out, let alone metallurgy. While some applied science subjects may be too complicated for the early years of school, at least pure science could

be taught with more emphasis on practical application.

"We must start the job of producing high-quality engineers in the schools so that the institutions of higher education do not have to produce them from scratch," Ranelagh says.

However, increased numbers of graduate science teachers in secondary schools are needed first of all because in recent years universities have been producing more arts and social science graduates than ever.

In order to rectify this imbalance, Ranelagh suggests that larger grants should be awarded to people who want to study in maths and science teachers. In addition, industry and Government departments could be encouraged to release scientifically qualified staff for periods of teaching in schools. This could be done by introducing a scheme of tax relief and grants for employers and employees.

Polytechnics, although expected to be more industry based than universities, have not developed in this way because the Labour Government's 1966 White Paper, *A Plan for Polytechnics and other Colleges*, did not make this clear. Instead, they have grown up to be very similar to universities and face broadly the same problems.

British industry's serious lack of high quality engineers could also be improved by companies giving opportunities to engineers—and by encouraging them to penetrate to senior management.

Ranelagh concludes: "As a matter of utmost urgency, Government and the education system must concentrate their organizing efforts to provide industry with the engineers of quality that are required and make industry recognize this requirement. Then we shall be able to afford what Lord Todd described as the 'seed corn' for pure science on which much of the future may depend."

## £800,000 grant goes to oncology unit

An £800,000 grant from the Imperial Cancer Research Fund is to be used to set up a medical oncology unit at Edinburgh University. The money will be handed over next week to the university, acting principal, Professor Berwick Saul, by the chairman of the fund's council, Sir Eric Scowen.

The new unit will consist of a professor with supporting staff and will concentrate on the medical care and management of patients with forms of cancer selected for treatment and study.

## Norfolk hardship fund

Open University students facing the prospect of financial hardship in Norfolk will be able to make application to a special fund. The county's further education sub-committee has set aside £2,500 to help OU students with financial problems.

## Advice service for mature students

by Maggie Richards

A new educational guidance service to aid mature students has been established in Hertfordshire. Based at the careers advisory service centre adjoining Hatfield Polytechnic, the new service is being staffed by two educational counsellors and is open five days a week.

It has been designed to offer free advice to adults wishing to re-enter or continue their education, or to advise on leisure activities. The service is also providing an assessment process for mature students, to establish their suitability for a particular course or programme.

Links have been established with Hatfield Polytechnic and the Open University, as well as with university career departments, the county careers service, and other providers of adult education.

Local counsellors are being appointed to most of the colleges of further and higher education in Hertfordshire, to provide a county-wide network of advisers.

Senior tutor for continuing education at Hatfield Polytechnic, Mrs Ruth Michaels said there was an obvious need for guidance at all levels, ranging from literacy classes to degree and postgraduate courses.

## NATFHE organises history course

A short residential course on the teaching of history in further and higher education is being organized by the history section of the National Association of Teachers in Further and Higher Education (NATFHE) in conjunction with the Historical Association.

It will represent the first major effort of the NATFHE history section following the absorption of the old Association of Teachers in Colleges and Departments of Education (ATCDE) subject sections.

The aim of the organizers is to develop a forum where all teachers of history involved in further and higher education may meet to discuss their common interests. The course, from July to July 14, will be structured around three lectures and four separate seminar groups.

Lord Briggs, Provost of Worcester College, Oxford, will lecture on history at the universities; Dr Robert Murray, Assistant Chief Officer and Registrar for the Council for National Academic Awards (CNAA) on history at the polytechnics; and Dr Clive Church, of Lancaster University, on course validation.

Seminar groups led by other tutors from universities, polytechnics, department of education or further education colleges will consider a range of topics relating to preparation for higher education, the history curriculum and examination in further education, and aims, methods and resources in history teaching.

## Overseas advisory bureau to close in the spring

by Peter David

The Overseas Student Advisory Bureau, set up in 1963 to help overseas students looking for practical experience in British industry, is to close down in the spring when its grant from the Government comes to an end.

An annual grant of less than £30,000 from the Ministry of Overseas Development accounted for more than 70 per cent of the bureau's income, and the decision not to renew the grant when it expires in April means that the bureau will be unable to continue its work.

Mr David Gruntley, the bureau's director, said that one of the reasons for the ministry's decision was that while the bureau traditionally concentrated on the needs of privately financed overseas students, Government policy had shifted in favour of aided students from poorer countries.

He added: "In the light of the policy they have chosen, the ministry is perfectly entitled to decide their priorities. My personal view on the other hand, is that the policy of neglecting privately financed students is short-sighted from a point of view of both trade and aid."

The advisory role of the bureau will be taken over by the UK Council for Overseas Student Affairs (UKCOSA), which is the national coordinating body for overseas student affairs. But the council will not be able to continue the bureau's placement programme for students seeking practical experience in industry.

Mr Rupert Bristow, UKCOSA deputy general secretary, commented: "It is undoubtedly a bad day for overseas students that the bureau is closing down. Its reason for being was finding placements for students for industrial training, and they have been difficult to find because of the economic situation. But it also provided expert advice to overseas students, and its closure will be a loss to the overseas student body."

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## NUS submits plans for 40,000 extra teachers

by Peter David

In an unusual gesture of direct action and detailed argument, the National Union of Students this week called on the Government to employ an extra 40,000 teachers by 1980, create another million part-time places for the 16-19 age group and save threatened teacher training colleges for educational purposes.

The students' proposals were contained in a lengthy submission given to Mr Oakes, Minister of State for Higher Education, after a morning-long picket of the Department of Education and Science on Wednesday. Later, students met MPs to put the case for saving colleges of education threatened with closure.

According to NUS calculations, only 19 of the 39 teacher training colleges threatened with closure have so far found alternative educational uses. "The remaining 20 represent an enormous physical resource which can be used to expand provision in the post-school education sector and to provide vital support services."

The NUS scheme envisages using the threatened colleges for curriculum development and training programmes serving a much-expanded further education system which would include pre-service training and less than three years' experience should undergo induction training.

They add: "The eventual aim must be for all new entrants to the further education teaching force to have adequate pre-service training. Allowance for this must be made within the number of teacher training places offered, including an increase in the number of places available at 1½ specialist colleges."

## Union branch head resigns over national 'interference'

by Simon Midgley

The former chairman of the National Association of Teachers in Further and Higher Education's branch in Ulster College has resigned from the union in protest against what he describes as "interference" in the affairs of the branch.

Dr Brian Eggins, an elected staff governor of the college—the Northern Ireland Polytechnic—and a delegate to the Northern Ireland Divisional Council of the NATFHE, who wrote to all branch members when he heard their views on joint negotiations were being sought.

Mr Broadbridge advised them that it would be most unwise for branches to deviate from the association's stated policy towards the APT, until the outcome of the ACAS (Advisory, Conciliation and Arbitration Service) inquiry and any recommendations on the issue of recognition were known.

Reference have been conducted by the service at Lanchester, Portsmouth and North London polytechnics in an exercise to enable ACAS to decide whether to recommend that the APT should be recognized in negotiations on conditions of service at local level. Reports of these inquiries were due to be considered by the ACAS council on Wednesday afternoon.

The results of the questionnaire are unlikely to influence local branch or national policy towards the question of joint representation with the APT, following Dr Eggins' failure to be re-elected chairman at the branch's annual general meeting earlier this month.

Mr David Montgomery, the new chairman, is critical of the former chairman's behaviour in this matter. He says the decision to circulate a ballot or questionnaire was taken without reference to the views of any other committee members.

Dr Eggins, he said, had chosen to ignore a unanimous decision of a branch meeting not to enter into any negotiations with the APT until the results of the ACAS investigations were known.

Dr Eggins is particularly concerned because he says the results of a ballot/questionnaire circulated among NATFHE branch members earlier this year revealed that 77 per cent of those who replied were

could provide education and training for 90 per cent of the 16-19 age group by 1983. This would be achieved by a phased introduction of 270,000 part-time places, every year from 1979.

These places would be open to young workers and unemployed school leavers and would consist of day and block release courses and additional places under the Manpower Services Commission programme.

Also called for in the submission is a review by the Government of its plans for the size of the teacher force in the 1980s. The NUS argues that the level of cutback in teacher numbers proposed by the DfS will prevent the education service from responding to the upswing in the birth-rate expected at the end of the decade.

The students accuse the government of failing to take account of the training requirements of further education teachers, and call for implementation of recommendations that all new further education lecturers with no pre-service training and less than three years' experience should undergo induction training.

They add: "The eventual aim must be for all new entrants to the further education teaching force to have adequate pre-service training. Allowance for this must be made within the number of teacher training places offered, including an increase in the number of places available at 1½ specialist colleges."

There has been a failure to define educational objectives in the teaching of medicine, pharmacy, dentistry and veterinary science, Sir Frank Hartley, vice-chancellor of London University, said last week.

Delivering the Wilkinson lecture to the Institute of Dental Surgery, Sir Frank warned that this failure had led to unsatisfactory student response to the multidisciplinary requirements of their courses. Qualification in these disciplines needed a broad experience of physical, biological and social sciences for their ultimate vocational application.

"The best students merely need the opportunity to learn and preparation to learn much from each other, but as teachers we have to create the means whereby they can do so more effectively and efficiently," he said.

Sir Frank said too few teachers gave sufficient thought and preparation to their own learning and preparation while most of them spent several hours preparing a lecture.

"The possibilities of programmed learning and the development of educational technology, through audio-visual aids, have caused many of us to examine critically how we could improve our teaching so that others may do better than we have done."

Once there has been an improvement in defining educational objectives and the means of realizing them, there will be scope for further specialization and the need for practitioners to cope with the new developments throughout their subsequent professional life.

"That is why all professions have had to be concerned with postgraduate, post-experience and refresher courses whether leading to further academic qualifications or not."

Sir Frank urged the professions—particularly those related to medicine and which rely upon a university degree for their academic basis—to realize their scope for reviewing their own education and training.

Attendance will be by invitation. Among those invited are vice-chancellors, polytechnic directors, members of the University Grants Committee, senior officials at the Department of Education and Science and other Government Departments, members of research councils, representatives of the National Union of Students and other teachers' unions and of the local authority associations, and leaders of industry.

Also speaking will be Mr Oakes, Minister of State at the Department of Education and Science with responsibility for higher education, and Mr Derek Robinson, chairman of the Social Science Research Council. Both sides of industry will also be represented.

The event is being organized by Mr E. A. Jackson, the education officer, and Mr D. E. Lea, assistant general secretary, will speak, and for the Confederation of British Industry Mr Terry Dean of British Aerospace, a member of the CBI's higher education panel and of the Standing Conference of Employers of Graduates.

The morning session will be devoted to the general theme of the universities' contribution to Britain's future and the afternoon session more specifically to research. At the end of each there will be periods for general discussion.

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Leeds University's new building for economics and social science departments was "topped out" last week by the vice-chancellor, Lord Boyle of Handsworth.

## 'Failure to define objectives'

by Robin McKie

There has been a failure to define educational objectives in the teaching of medicine, pharmacy, dentistry and veterinary science, Sir Frank Hartley, vice-chancellor of London University, said last week.

Delivering the Wilkinson lecture to the Institute of Dental Surgery, Sir Frank warned that this failure had led to unsatisfactory student response to the multidisciplinary requirements of their courses. Qualification in these disciplines needed a broad experience of physical, biological and social sciences for their ultimate vocational application.

"The best students merely need the opportunity to learn and preparation to learn much from each other, but as teachers we have to create the means whereby they can do so more effectively and efficiently," he said.

Sir Frank said too few teachers gave sufficient thought and preparation to their own learning and preparation while most of them spent several hours preparing a lecture.

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Once there has been an improvement in defining educational objectives and the means of realizing them, there will be scope for further specialization and the need for practitioners to cope with the new developments throughout their subsequent professional life.

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## Contest for places gets keener

by Judith Judd

Competition for university places is becoming tougher, according to the latest report of the University Central Council on Admissions published yesterday.

The council's fifteenth report, which covers the 1976-77 academic year, says that applications from British students went up by 8.4 per cent compared with an increase in acceptances of 5.5 per cent. If these are related to the increase of 2.1 per cent in the age group, the report says, there is an apparent growth in the degree of competition for places.

This trend is even more noticeable at the clearing house stage where the percentage of applicants accepted has gone down from 41.1 per cent in 1975 to 38.7 per cent last year.

The total number of applications went up by 7.9 per cent compared with the previous year to 153,616. This was the third consecutive increase after a period of several years when there was little change in the number of applicants.

The report says that, though most of the candidates accepted through the clearing house in the past three years have been of similar standard, in a few subjects—medicine, architecture and veterinary science—there has been a slight increase in the quality of candidates.

"There is certainly no evidence to suggest that the standard of accepted candidates is so far as this can be measured by examination grades—is in any way falling."

Last year was the first year since 1969 that the percentage increase in overseas candidates was less than the percentage increase in home candidates, a sign, perhaps, that the effect of increased tuition fees is beginning to be felt. The number of overseas candidates went up from 20,303 to 21,569, or 5.2 per cent.

The proportion of women applicants also rose. Women now represent 36.7 per cent compared with 36.2 per cent in the previous year. UCCA's Fifteenth Annual Report, 67p post free from UCCA, PO Box 28, Cheltenham, Glos., GL50 1HY.

## Oxford poetry jamboree starts

Oxford University authorities this week signalled the start of the five yearly jamboree for the election of a professor of poetry.

The present holder, Mr John Wain, 53, poet, novelist and critic, retires on November 23, and in the normal course his successor would take over from that date—as a salary of £1,080 a year.

The duties are to give a lecture in each of the three terms of the university year, and to deliver the Cresswell Oration at the Encenia in alternate years.

"This is not a very convenient date for a change," says an announcement by Hebdomadal Council in this week's University Gazette. Council has made a decree providing that in future the professor of poetry will hold office for five years.

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Lord Boyle

## Universities and the future

Lord Boyle, vice-chancellor of Leeds University, chairman of the Committee of Vice-Chancellors and Principals, and a former Conservative Minister of Education, will be one of the speakers at a conference on the universities and Britain's future being jointly sponsored by the Association of University Teachers and The Times Higher Education Supplement. It will be held



## The Oakes report 'could bring tighter controls'

by Peter David

The Oakes report on the management of higher education in the public sector could result in much tighter control of spending in polytechnics and colleges, a member of the Oakes committee said last week.

Councillor M. E. Venn, chairman of the Regional Advisory Council for London and the Home Counties, told a meeting of the British Educational Administration Society that the partnership between local authorities and their institutions would remain "fairly tight".

"It said it was erroneous to link polytechnics' demands for autonomy with the issue of academic freedom. Although the educational and administrative aspects of an institution could never be entirely separate, some division of financial and operational functions was possible."

Local authorities should continue to lay down the broad financial arrangements for polytechnics and colleges, he said. But institutions' budgets should have a minimum number of headings, and colleges should be allowed considerable freedom to transfer money from one budget head to another.

Local authorities should also be allowed to lay down financial regu-

lations to assist the smooth running of institutions. The regulations would cover the way estimates were submitted, auditing requirements, the definition of authorized expenditure, staffing establishments, rates of pay and the way goods and services were handled.

Colleges' residential and catering operations, for example, should be related to the local authority's activities, and minor works should be brought in the local authority's remit.

He added: "Above all, we can best improve the management at institutional level by clarifying the relationship between the governing body, the academic board and the staff of the institution."

Councillor Venn said that the single-course approval system currently operated by regional advisory councils was likely eventually to be replaced by a "rolling plan" system of course approvals. But he denied allegations that regional advisory councils caused unnecessary delay in the approval of courses.

"We can turn a course around in three months. The rest of the delay is due to the validating bodies and to nobody else. I am told—and I am not just picking on the Council for National Academic Awards—that there's something of a log jam there."

## Spending cuts pushed up prices of technical books—publishers

by Maggie Richards

Book prices have in general risen less than the cost of living in recent years, according to the Publishers Association. But in its submission to the Prices Commission, which is conducting an investigation into book prices, the association reports that prices of technical books have spiralled.

It says cutbacks in public spending have led many local education authorities to reduce their orders, and so push up the cost per copy. World inflation and devaluation have also led to higher prices for imported technical books, the submission adds.

The association also warns that the complex and competitive nature of the industry makes it a highly speculative business. Some titles are very successful and profitable, but others are considered failures.

"In order to publish new 'high risk' titles, a successful publisher has to have a sufficient range of profitable titles to produce the necessary financial backing."

The submission also lists other costs which have contributed to higher prices, including escalation of paper prices, rapidly rising printing costs, and the wages explosion of the early 1970s.

It outlines other factors which

specifically affect the price of technical books. These include demand for regular updating; revision of texts for decimalization and metrication; and the rapid growth of reprographic facilities.

The association says that while it may theoretically be possible to rationalize the publishing trade, one of the major values of the industry is the ability and willingness to offer a wide range of titles of all kinds.

Dealing with the export potential of the industry, the submission points out that the international market for English-language books is growing fast and needs full support from the Government.

"The industry is an important export industry in its own right, and also because of the additional trade it stimulates: the domestic and export markets are inextricably interlocked and a loss of profitability on either would have damaging consequences for the other," it reports.

The submission also records that in 1976 the industry had a turnover of £406m, of which £175m—43 per cent—was derived from export sales. Turnover increased by 2.4 times in real terms between 1950 and 1975, and by 10 per cent between 1971 and 1976. Export sales during the same period increased 3.2 times, and by 11 per cent between 1971 and 1976.

It outlines other factors which

## Socialist call for shift of emphasis

by Simon Midgley

The huge underground resources higher education institutions should be made available for mass education, Mr Eric Robinson, principal of Bradford College and vice president of the Socialist Education Association, said in an address to a National Organization of Students conference last week.

Criticizing the Labour Party's approach to a General Election as a defensive attitude and its "urgent review of basic ideas of education," he calls for a "shift of emphasis from higher education to further education."

"We lack both the will and the courage to take on the academic establishment and insist that huge underused resources of higher education institutions are made available for mass education," he said.

"Even many right-wing economists at home and abroad tell us that our economic prosperity is seriously hindered because our educational provision is so unequal."

But Britain is too preoccupied with an elite and too neglectful of the rest.

"We have a wealth of skill at the top of the system and an appalling dearth in the middle and at the bottom. In the schools this is reflected mainly in our failure to help the lower streams and the poor localities. Beyond school there is gross inequality of educational provision and a disgraceful neglect of those who leave school at 15 coupled with the relative paucity of the elite in sixth forms and universities."

Comprehensive education is a mockery so long as it led into highly class structured work force with training and careers for some, jobs for others and limbo for the rest.

Too often the education system was destructive of individual identity, insufficiently concerned with preparing young people to meet the demands of the real world, and generally antagonistic to popular power.

The party should take a hard line against classroom violence by both pupils and teachers, give priority to practical studies and insist that schools and colleges should promote and practice democracy.

Another is a suggestion that the government increase the research council's expenditure by 12 per cent a year over the next five years. Their 1977/78 budget did indeed rise this amount—which was not nearly enough to compensate for the seven previous years when the increases were consistently less than the inflation rate—but there

## North American news

## Need for strong science policy is re-emphasized

from Clive Coulson

North America correspondent

WASHINGTON

The implementation of a national science policy for Canada has reached "the take-off stage" after several "wasted years."

That is the mildly hopeful conclusion of an otherwise gloomy final report from the special committee on science policy set up by the Canadian Senate 10 years ago. The committee, chaired by Senator Maurice Lamontagne, completed its original work in 1973 but reconvened for a second "post-mortem" inquiry that lasted from 1975 to 1977.

It found that until 1976 the government did very little to implement the recommendations of its first report or to correct the imbalance in Canada's research expenditure. For example, industry carries out only 40 per cent of the national research effort; the corresponding figure in most western countries is about 60 per cent.

The Lamontagne committee compared Canada and Scandinavia, which have about the same number of university researchers. Canada had 9,000 more research workers in government laboratories and 20,000 fewer in industry in 1973; the position has not changed much today.

The committee recommended six years ago that the government should use industry and the universities to meet as many of its research and development needs as possible, but this policy was not adopted for all scientific activities until last year. The senators now recommend its application to universities as quickly as possible.

The extension of this "make-or-buy" policy, as it is known, to an official at the Ministry of State for Science and Technology (MOSST) says they are trying to drop the expression and adopt "contracting out" instead—is one recommendation intended to benefit university researchers.

Another is a suggestion that the government increase the research council's expenditure by 12 per cent a year over the next five years. Their 1977/78 budget did indeed rise this amount—which was not nearly enough to compensate for the seven previous years when the increases were consistently less than the inflation rate—but there

have been rumours that the 1978-79 science budget may go up considerably less.

The Senate committee foresees "an imminent crisis in the government and university sector that is seriously threatening our national research capabilities. Canada may lose a whole generation of researchers," it warns. Flaming the government's austerity programme and the lack of job mobility among researchers, it recommends that the government should reorganize Canada's research council, as recommended by the Senate committee five years ago, was eventually passed last summer, but the government has not yet set up the new councils. The delay is causing increasing concern in the country's academic and scientific communities, which say the uncertainty and lack of leadership are handicapping research activities.

When the legislation is "proclaimed," the existing National Research Council will keep control of its own laboratories while its granting functions pass to a new Natural Science and Engineering Research Council. A new Social Science and Humanities Research Council will be hived off from the Canada Council, which is to retain its responsibilities for the arts. The Medical Research Council will remain in charge of the health sciences.

Canada's Ministry of State for Science and Technology was established in 1971 to formulate national science policy and coordinate federal activities in science and technology. The senators say they "anticipate that the Ministry of State would become a dynamic agent for change and that action on our other recommendations would soon follow. However, our expectations were not realized."

MOSST has suffered from internal instability with frequent changes of Minister (five in five years) and top officials, but the senators believe it is at last beginning to do some useful work.

They urge it to set targets for the size and distribution of Canada's scientific activities to be reached by 1982. The committee originally proposed spending 2.5 per cent of the GNP in science by 1980. Now it suggests a more realistic goal of 1.5 per cent by 1982—a figure that would still leave Canada near the bottom of the list of western nations.

University teachers in Ontario are upset about what they take to be a possible threat to their academic freedom posed by a proposed new human rights code for the province.

The Canadian Association of University Teachers (CAUT) and the Ontario Confederation of University Faculty Associations (OCUFA) have read into the proposals submitted to the provincial government by the Ontario Human Rights Commission "a suggestion that Ontario universities be required by law to promote the commission and the Ontario human rights code."

"We believe it is fundamentally wrong to require the universities to disseminate a particular political view to students, no matter how morally uplifting that view might be perceived to be," OCUFA says.

The commission, set up in 1962, says the two organizations have misconstrued its recommendations. The report does say that scholars need to devote much more attention to human rights in teaching and research. "But the commission was not dead against any suggestion that any one particular point of view should be propagated in universities," says its chairman, Dr Thomas Symons.

The two teacher organizations are also uneasy about the commission's proposal that textbooks and learning materials should be carefully reviewed to ensure that they are accurate and sensitive to minority history, customs and values, and that prejudice and discrimination are not recycled and perpetuated. "While everyone agrees with the

need for a strong science policy, it is not clear who is to give the required careful attention to reviewing and revising textbooks and other materials," says CAUT.

"Nor is it clear whether the commission's recommendations include university curricula and courses. This lack of clarity as well as the ominous shadow of censorship disturbs us."

However, Dr Symons says the commission has made it quite clear that the recommendation about textbooks is directed at schools: "There has been a problem with many textbooks used in Canadian schools that have consciously or unconsciously conveyed racial and sexual stereotyping."

Apart from their reservations about academic freedom, CAUT and OCUFA have reacted enthusiastically to strengthening and updating Ontario's 16-year-old human rights code, which was the forerunner of those of other Canadian provinces.

For example, they agree that nationally, sexual orientation, family relationship and marital status should be included as grounds on which discrimination is prohibited.

They want universities to be placed clearly under the code as long as the definition of citizenship allows them to "hire qualified foreign citizens consistent with current guidelines on the Canadianization of universities."

They have requested, too, an exemption for universities from requirements for the handicapped that the Ontario government gives their funds to make the necessary alterations to their buildings.

## Unionization shows signs of slowing

from our own correspondent

WASHINGTON

The last year has seen the lowest rate of academic unionization in the United States since the process started in 1968. The nation's three teacher unions gained collective bargaining rights in only seven four-year colleges and universities during 1977.

A report by the University of California's Faculty Union in Berkeley shows that for the first time last year more four-year institutions rejected than accepted collective bargaining.

In eight elections involving 3,000 faculty members, a majority of votes were cast for "no union" rather than the American Association of University Professors, National Educational Association or American Federation of Teachers.

Twenty-three two-year colleges recognized bargaining agents during 1977, but 21 of them were in California where the state legislature first permitted collective bargaining in its community colleges in 1976.

Three two-year colleges voted against unionization. The seven four-year colleges unionized last year accounted for 2,600 academics, bringing the national total to 81,750 people organized in 196 institutions. Another 51,500 teachers work in the 290 unionized two-year colleges.

Estimates of the percentage of American academics who have been "organized" vary, depending whether part-time staff, librarians and so on are included, but the overall proportion is thought to be roughly one quarter. It is higher in the community colleges and lower—perhaps 15 per cent—in the four-year sector.

It is possible that some of the impetus for unionization has been diminished, but a more probable explanation is the saturation of the market for unionization in the states with supportive legislative bargaining laws, according to Professor Joseph Garbarino, director of the Berkeley project, and in state associate Dr John Lawler.

Virtually every public institution of higher education is already organized in the states of Massachusetts, New Jersey, Connecticut, Rhode Island, New York, Delaware and Hawaii, they say.

In Michigan, Pennsylvania and Minnesota the whole four-year public sector is unionized except for the major research universities. In Florida, all four-year colleges are unionized but most of the community colleges are not.

In the absence of an expansion of collective bargaining rights for faculty into new states, faculty unions will find continued slow going. The 1976 bargaining law covering California community colleges dramatically demonstrated the importance of legislative extension in 1977, the Berkeley researchers report.

Dr Martin Baratz, general secretary of the American Association of University Professors, predicted (THESE, January 13) that very few of the 26 states that do not permit unionization of public colleges would pass collective bargaining legislation in the near future.

However, Professor Garbarino expects "creeping unionization" of American higher education to continue, with perhaps another 25 to 30 per cent of the country's academics organized into collective bargaining units in five years' time.

He thinks the collective bargaining movement will reach the nine campuses of the University of California and the 19 of the California State University and colleges this year. University staff are almost the only state employees in California who are not yet unionized and the legislature was widely

expected to extend collective bargaining rights to them last year. In the event the necessary Bill was rejected by the state senate's education committee. However, the University of California Board of Regents, which had approved collective bargaining for its employees, very recently changed its mind, on the chances of the unionization law passing the senate in 1978 are better than ever.

Of course, the fact that academics are permitted to form a collective bargaining unit does not mean that they will immediately vote for unionization. Professor Garbarino points out that the political pressure on faculty members to do so becomes very strong if they are the only significant group of state employees not represented by a union.

One important development in the states most sympathetic to trade unions is the spread of the "agency shop". In this form of closed shop all employees in a bargaining unit have to pay dues to the union that negotiates their pay and conditions with the employer, whether or not they want to join it.

"This does not affect the statistics of union coverage, but the growing number of states mandating or at least permitting agency shop provision are doing a great deal for the financial solvency of the faculty union movement," Professor Garbarino and Dr Lawler say.

But, Professor Garbarino says, faculty unions do not take the opportunity to boost their income in this way unless they are confident of support. If a bargaining agent that has won a narrow victory in a bitterly fought election then requires all faculty members to pay it dues, it risks provoking such an adverse reaction that its opponents may be able to succeed in having it "decertified" at another election—as has happened more than once.

Francia College, a small but controversial liberal arts college in New Hampshire, has closed down—beaten by long-standing financial problems.

The Board of Trustees decided to shut the experimental college two days before its spring semester was due to start. Officials are trying to place the 300 students in other institutions.

Francia was founded in 1962 to provide an educational alternative to more formal four-year colleges. Students were not graded and they experienced radical new teaching methods. They were fully involved in college government and curriculum development.

Opposition from New Hampshire residents and conservative politicians reached a peak in 1968, when the college was accused of being a centre of drug abuse, sexual freedom and draft evasion.

The college has struggled along under severe financial difficulties for 10 years. Last month, the college President, Dr Jim Goldenberg, reported that it had been unable to pay off a \$340,000 deficit from 1975/76.

The Centre for Homosexual Education, Evaluation and Research (CHEER) at San Francisco State University has been awarded a \$500,000 grant by the National Institute of Mental Health for the first federally funded study of the violation of civil liberties of men and women who are homosexual or who have "deviant" attitudes to men's work. The study is to be completed later this year.

However, the association does say that some of the advanced specialities like veterinary pathology and veterinary toxicology are suffering genuine shortages.

Indeed, the profession maintains there is a serious shortage of government funds to support research into the health and diseases of economically important animals. The 1979 Budget that President Carter announced last month caused further disappointment: the administration wants to cut back the limited support the Department of Agriculture is giving veterinary research.

Canada has just three schools, at the universities of Saskatchewan, Montreal and Quebec, and Ontario, but a fourth has been proposed to

serve the Atlantic provinces. The country has 1,000 veterinary students this year.

Traditionally, veterinary schools in the United States have been associated with the land-grant colleges, the originally agricultural state universities set up in the late nineteenth century, and 20 of the 22 colleges are associated with state universities. The two private schools are at Tuskegee Institute, an independent black university in Alabama, and the University of Pennsylvania (whose veterinary school is exceptional in being closely linked to the university's medical school, rather than the faculty of agriculture). A third independent veterinary college opens next year at Tufts University, Massachusetts.

States that do not have veterinary schools train veterinarians (as veterinary surgeons are known in the United States) by sending them to out-of-state schools and paying most of their tuition fees.

The states' motives for expanding veterinary education are two-fold: to meet the student demand and to alleviate an alleged shortage of rural vets.

Farmers, especially those with dairy herds, maintain that there are far fewer vets prepared to come out to treat their animals today than there were 10 or 20 years ago. "We have a lot of veterinarians, but there are very few who will practise on large animals," said one farmer. "They can make a lot more money seeing pets while the people bring the animals to them."

The American Veterinary Medical Association is sponsoring a manpower survey of the profession that should answer some of the questions about vets' attitudes to rural work. It is due to be completed later this year.

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# South African vice-chancellor for all seasons

Martin Feinstein profiles  
Professor G. R. Bozzoli  
who recently retired  
after nine years heading  
Witwatersrand University

The vice-chancellor of the University of the Witwatersrand must, of necessity, be a rare combination of peacemaker, beggar, politician and scapegoat.

One reason is that the university (Wits, as South Africans know it) is the country's most politically volatile white university. Its staff and students, forbidden by law to protest openly against apartheid in education, usually make their outspoken opinions widely heard, and the vice-chancellor, answerable to a highly sensitive government, must maintain a difficult balance between the university's dependence on official institutions and its commitment to academic freedom.

Wits is also widely seen as the country's most vibrant academic institution. Its international staff, its situation in Johannesburg and its large research component have combined to produce the astonishing potential for African-oriented teaching and research which is only beginning to be realised there.

Behind the university's growing social and academic links with the huge township of Soweto (reflecting the increasing volume of African-oriented research at Wits) was Professor G. R. Bozzoli, who retired last month after nine years in office as vice-chancellor.

He has, to use his own words, "seen the university change from grassroots beginnings to a large, sophisticated and controversial institution, praised by many, scorned by many".

Dr Bozzoli's association with the university dates back to 1930, when he enrolled as an engineering student after his matriculation from Pretoria boys high school, after graduating in 1933. A series of promotions in the electrical engineering department led to his appointment in 1948 as the department professor and head. He obtained his DSc the same year.

For the next 11 years, his service

on the university council, and for a shorter period as dean of the faculty of engineering, established him as one of the university's most able and popular administrators.

His appointment to the post of deputy vice-chancellor came in 1965, and five years later he became the university's ninth vice-chancellor.

It was then that he set his sights on the three broad goals which have shaped the university's policies: until now and are sure to continue doing so for some time. They are the opening of the university to all races, the continuation and intensification of the university's highly selective appointment and admissions policy, and a better balance between teaching and research—particularly in the humanities.

Today he admits that all three have only been partially met—mainly as a result of government intransigence over segregated universities and a continuing austerity programme at Wits.

All three have enjoyed equal priority, but by far the most sensational has been Dr Bozzoli's spearheading of the attempts at breaking down the ethnically exclusive barriers of academic apartheid. Having been declared a "whites only" university by the 1959 Extension of University Education Act, his all-races have met with consistent failure. With the exception of a small number of Indian students at the university, his persistent representation of the cabinet have met with official refusal.

But the imminent enforcement of the Minister of Bantu Education, Mr M. C. Botha, has boosted hopes for the far reaching changes in higher education in the near few years, and Dr Bozzoli predicts a relaxation of academic apartheid.

Mr Botha is the man whose unyielding refusal to separate education and apartheid has posed the greatest stumbling block to Dr Bozzoli's open university plan, and his retirement at the end of this month will be anxiously watched by those who will control the university over the next few years, particularly Dr Bozzoli's successor, Professor D. J. du Plessis.

Says Dr Bozzoli: "So many of these rigid policies depend upon an



Professor G. R. Bozzoli: peacemaker, beggar, politician and scapegoat.

individual, and I see the situation of the individual who has stuck to them as it is settling. I suspect there will be a change in the admissions situation now."

Progress towards the other two long-term goals—the continuation of a selective appointments and admissions policy and a better balance between teaching and research—has been slowed down by financial difficulties and worsening foreign relations.

The year 1974 signalled the start of the founding crisis in South African higher education, still reflected at Wits in the austerity programme. Research has been curtailed financially (several of the university's 30 research units are down to their core staff, and one has closed down) as well as by staff cutbacks which have forced researchers to spend more time in the lecture theatre.

Nevertheless, says Dr Bozzoli, the university's financial prospects are good. "Wits does not have an unhappy financial prognosis, mainly because of the preemptive measures we took (including the staff cutbacks which have hit Wits so hard) and we have contained the situation

well up till now. Provided these areas are kept in control, the university will be able to weather the storm as its student numbers grow in the years ahead."

The university's worsening relations with some overseas universities—be declared to name them—were beginning to threaten the flow of foreign academics who are in such high demand at Wits. It is clear that much of the university's academic prestige in SA depends on them, and Dr Bozzoli sees the university becoming increasingly dependent on international exchange continues to suffer from the isolation brought about by overseas protests against apartheid.

Over 30,000 of the university's staff are foreign drawn mainly from Britain, Canada and Australia.

"Informal contact has been maintained, and the individuals with whom we have contact are regarded very highly, but it is awful not to be part of the family," he said referring to the university's exclusion from the Commonwealth university conference in other cases of overseas hostility include a ban on academic visitation in the United States and the Open Univer-

sity's refusal to accept South African academics.

If the university's financial crisis is good, the prospect of physical expansion in Johannesburg is not. Dr Bozzoli says that the university has been unable to secure the necessary funds for the creation of a major new building, and that the university is "in a very difficult position" to be able to do so.

"Under present economic conditions I could never expect Government to put forward funds for an entirely new building, although they might finance a limited expansion of this or that building," he says.

The Open College, now in its second year, has come a long way since its inception, and his policies, Dr Bozzoli says, have led him into difficulties with the Prime Minister (who he describes as "exceedingly well-informed about the things students say, do, think and feel") and his own staff.

"Many of my friends and acquaintances," he says, "less they happen to be politicians, are highly critical of what the college is doing. Some even accuse me of sufficient control and discipline, and their defence has been given me a hard time."

In a student referendum last year, Dr Bozzoli put his open access policy to the test in a student poll. Of the 2 per cent margin that came out in support, he said: "It showed that the majority are not so much involved, they are aware, thinking liberal people."

But this overwhelming support is offset by the open access policy, he says, which is a "very high price" to pay for the university's exclusion from the Commonwealth university conference in other cases of overseas hostility include a ban on academic visitation in the United States and the Open Univer-

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## Alternative route opens for adult students

Maggie Richards reports  
on an open college approach  
to part-time courses in the  
North of England

"Nobody who has done our study techniques course could expect a political party broadcast on television now without curling up with laughter." The speaker is a former lorry driver, now a student enrolled on the country's first "Open College" course, taking part in a discussion on the impact of study on his life.

A woman student adds her contribution: "I worked on a factory line for two years. It was a challenge, because I hated every minute of it. Now I have begun to think—and I have begun to realize I am not as dense as I had imagined." And a former grammar school pupil says: "This course has demonstrated to me how the system failed. It didn't teach me a critical approach. It didn't help me to criticize and to reason—just to write an examination paper."

The three are all members of a new "Open College" course being run at Nelson and Colne College in Lancashire. In conjunction with Lancaster University and Preston Polytechnic.

The course has been devised to offer adults an alternative part-time route into higher education, following a programme of studies more suited to their needs than conventional A levels. But the college has also devised a series of subject units at first and second year level other mature students, more interested in selecting a subject for their own sake.

During their first year, students take Stage A units, intended to introduce them to skills, basic concepts and methods of study. The units consist of 50 hours of tuition, and last up to half a year. Students are expected to complete four before progressing to Stage B. First year units include Study Techniques and Scientific Method, with introductory programmes on social sciences, politics and eco-

nomics, music, art, literary forms, and the physical sciences. There are introductory units in three languages—German, French and Spanish.

Stage B units, involving 100 hours of tuition, offer European Studies, The Educational Process, Man as an Organism in the Environment, and People in Organizations—as well as modules in mathematics and the physical sciences, history, religious studies, languages and geography.

The Open College has a unique—and as yet untested—link with Lancaster University and Preston Polytechnic. Some students now in their second year will, on completion of six units, including two at Stage B, apply for places at Lancaster, the polytechnic, or four colleges whose degree courses have been validated by the university. Applicants will be assessed partly on their course work, but 50 per cent of the assessment will be made on their performance in a final end-of-course examination.

The college has a rolling admissions policy, with entry dates in April, October and January. More than 100 new students enrolled in October, bringing the total to 170.

They come from a variety of backgrounds: many are housewives—women predominating throughout the course, with 95 female enrolments so far, compared to 75 male.

Amongst the employed students, those in technical skilled and semi-skilled jobs dominate, followed by those in clerical posts or undertaking unskilled labour, but there are also teachers, health visitors and managers. The course can also boast a sprinkling of pensioners—including one woman of 78—and several unemployed.

To the organizers at Nelson and Colne, Mr Mike Leese and Mr Derek Crossland, the prominence of mature students from the three largest job categories is one of the most exciting aspects of the college's development. "We appear to be attracting a new type of student, who has not come forward before," explained Mr Crossland.

There are now 36 tackling Stage

## Happy to work in interesting times

David Butler's appetite for elections is undiminished. Mike Duckenfield reports

In a sense, David Butler has been involved in politics all his life. He was born on the night of the 1924 general election campaign—the third in which his grandfather, Albert Pollard, a history don, contested the now abolished parliamentary seat of London University as a Liberal.

For all that, Dr Butler's background is totally academic and largely non-partisan. His father, a University professor of Latin at University College, London, and his wife is a fellow of St Hugh's. He was brought up in Bloomsbury and went to St Paul's School and New College, where his father had also been a professor.

At New College, he took an abbreviated form of PPE. Sir Isaiah Berlin, his tutor, he says, thought him "the most unphilosophical pupil he had ever encountered" and said it was a great triumph of teaching to show me how I could take Schools without including any philosophy papers.

After two years in the Army he returned to finish his degree in 1945, and by chance got involved in the first Nuffield election study. He had been turning the election results into percentage form—a thing never done at that time—when his economics tutor told him about a projected book.

"So I went along to see the author, R. B. McCallum. He was totally unimpressed and asked me what I was doing. I said I was working on a book. He said, 'Oh, well, I'd like to have some statistics for the book. Can you provide some?' So I produced some tables for him."

Dr Butler's two appendices to the book, one relating the number of seats to the number of votes, were a turning point. He gave up the idea of a career in economics and successfully applied for a scholarship to Princeton University, the American home of opinion polling.

When he returned to Nuffield he



Open College tutorial session

while about one third of those who have not continued at second year level have chosen Open University courses or other educational programmes instead.

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some, who enrolled to broaden their interests, the course has led to a re-examination of their own capabilities and the realization that still accompanied by a sense of interdependence—a university education may be within their grasp.

In the student discussion of the course the former lorry driver says: "I had been out of the classroom for 27 years. I spent 20 years in solitary confinement, sitting alone in my cub doing 100,000 miles a year. In that sort of environment you can only deal with basics. Life is a struggle, and you have to clear all the extraneous thinking out of your mind if you are to survive."

"I have decided to initiate changes in my life—to go to university. But I realize that before going to university I have to get them to accept me—and more important, to get them to accept that I am capable of receiving instruction."

Other students report their studies have had an impact on their own attitudes to education, and this in turn has affected the outlook of their children. "My children are proud of me. It makes them think about their education and their future," said one housewife.

Several had more personal objectives in enrolling. A pensioner and former trade union official reports: "I had retired, and I suddenly realised that it was the end of my career. I decided it was time to change my outlook entirely. The course has been most interesting for me, now I am hoping to go on to university."

Since the inception of the course at Nelson and Colne four other colleges—West Cumbria, Accrington and Rossendale, Lancaster College and Adult Education and Morcambe College of Further Education—have joined the scheme and are teaching Stage A units.

Last month the scheme took another step forward with the creation of the Open College Federation of the North West, which will enable staff in all five colleges to participate in the development of new units, and the revision of existing ones.

The Federation has already attracted the attention of other colleges in the north-west, which have expressed interest in joining the group.

A further expansion of the scheme is likely in the near future. The National Extension College at Cambridge is planning the production of two Stage A units, Study Techniques and Scientific Methods, in correspondence course form. If this pilot project is successful, other units may be presented in correspondence form—though completion will not entitle students to make application for places at Lancaster.

Not all of those now in their second year and aiming at admission to university originally began the course with that intention. For

quand and A. J. P. Taylor; a second on referenda in democratic countries; and the third is a fifth revised edition of British Political Facts, the reference work he wrote with Jennie Freeman in the late-1950s.

Despite his statistical work for the 1945 study, Butler is not "a quantitative person." "I was born a little too early to be computerized. I'm almost a first class statistician, but I'm numerate, I'm not a statistician or mathematician."

He is essentially a ferretter after facts and virtually all his books can be used as reference works, including the election studies, which aim to record events and provide a document setting out for the convenience of future historians the publicly available information about elections.

The structure of the studies has remained much the same since their inception; they are of necessity shaped by the dramatic unity of telling a story. As the introduction to the 1970 volume put it, in the style of a Victorian novel chapter-heading: "to show why Labour went into the depths of public disfavour; to show how it recovered; and then to show how the way in which the Conservatives won after all."

However, emphases have changed, partly due to the contributions of co-authors during the past 20 years. Richard Rose in 1959, Anthony Little in 1964 and 1966, Michael Pitts in 1970, and now Dennis Kavanagh for both 1974

Initially, the run-up to elections was kept brief in the belief that voters at election-time were like jurors, making up their minds on the evidence at the time. With research to prove the opposite—that very few voters change allegiance even over long periods—background became more vital to the studies.

Since 1970, however, the circle has become complete. The last minute swing away from Labour in

to be bored or run out of ideas as I went into my fifties, but at the moment I feel very much the opposite. My subject has become so much more interesting. One can be a little unhappy about this as a patriot; one doesn't like one's country to be too interesting. But, it's like the lovely Chinese curse—'May you live in interesting times'."

## British engineers fall behind Germans in status and salary

Far reaching changes in the recruitment, training and employment prospects of engineers are crucially important to Britain's economic survival. This is the message of a Southampton University research team which has been studying the role of the mechanical engineer in West Germany.

German engineers earn more, enjoy higher status and look forward to better job prospects than their British counterparts. There is an urgent need to extend the length and broaden the scope of British engineering training; pay top practitioners better; and involve the profession more in industrial management functions.

The team's survey report, *The Recruitment, Deployment and Status of the Mechanical Engineer in the German Federal Republic*, has just been published. The authors of the work, which was commissioned by the Department of Trade, are Professor Stan Hutton and Dr Peter Lawrence of the university's department of mechanical engineering and Professor John Smith of the university's department of sociology and social administration.

The study, which began in April 1975, is partly based on the results of interviews with 1,000 German mechanical engineers. The authors able modifications to a study of British mechanical engineers conducted in the early 1960s by Professor Hutton and a colleague. They urge a word of caution in interpreting some of their comparisons because some of their data derives from the British study conducted in 1962.

In Germany the two main routes to professional engineering qualifications are via the technical universities, Technische Hochschulen, leading to a Dipl.-Ing. or via the engineering schools, Fachhochschulen, leading to the Ing. Grad.

The Ing. Grad. course takes about three years and the Dipl.-Ing. takes about six years but has a higher

status. All Dipl.-Ing. students must have done three months industrial training before they enter university and must do another three months during their course. Ing. Grad. students receive practical training during their course but nowadays it is not obligatory for them to serve an industrial apprenticeship.

The authors argue that the German engineer enjoys higher status because of the quality and duration of his training, his remuneration is higher than that of the other middle class occupations, and his access to management positions in German industry. It was further explained in terms of the closer contacts between industry and the institutions in Germany where engineers are trained, the higher status of German industry itself, and the state sponsorship of engineering education.

Other factors included a specialist rather than generalist emphasis in occupational placements and promotion, a general tendency towards materialism and meritocracy in German society, and the engineers' pre-eminent role in Germany's post-war reconstruction.

The relative absence of a concept of "professions" in Germany, the authors also argued, meant that engineers could not suffer a loss of status through controversy as to whether or not they constitute a profession.

As far as remuneration is concerned German engineers are paid more than their British counterparts. In January, 1976, the Institution of Mechanical Engineers in Britain revealed in a salary survey of its all grades, both graduate and non-graduate was £5,510 per annum.

The average salary for the author's sample of German mechanical engineers was £12,119 per annum. Even given that the cost of living in Germany in 1976 was 36.4 per cent higher than in Britain,

the German engineer is better off. The authors also draw attention to another British study which shows that in Germany the engineer is better paid relatively than other high status occupations, for vantage or professor. In Germany technicians in industry earn more than engineers in the public sector, whereas the reverse is true in Britain.

The training period for German engineers is longer than for their British counterparts. For the normal formal engineer in Germany four years plus a sixth months compulsory Praktikum in industry. The average length of the German university course in engineering, however, is 5.8 years.

The length of the British university course is three years and there is no university requirement for practical training in industry as part of the course. For the non-graduate engineer, the Ing. Grad. in Germany, the comparison is more complicated. The formal course length is three years but the six months compulsory Praktikum in industry is not included.

In Britain there are three approximate equivalents to the German Ing. Grad. course: parts one, two and three of the Technician Course; ONC-HNC; and OND-HND. The courses where the time actually spent in college is substantially less than the three years full-time Ing. Grad. course. The third, if this is a thick-sandwich course, may also involve three years of college study.

The authors also point out that engineers come from middle class backgrounds; attended a selective secondary school; and studied mechanical engineering at college. On the other hand the time of deciding to become engineers is more British students' thought of an eventual

career in management and while studying took non-technical subjects at college. A higher proportion of British engineers had fathers who were university graduates.

More German engineers had given lectures or papers outside their work, published books and articles, and worked in industry.

And they also appear to work longer hours, be slightly more committed to engineering, and enjoy their jobs more than their British equivalents.

In future the authors suggest that university engineering faculties should try and attract a considerably higher proportion of students with very good "A" level passes. The need, they add, is for quality rather than quantity. Nothing that the ratio of qualified engineers to scientists is significantly higher in Germany, they would like to attract some of the people who read science at university to study engineering so as to improve the balance in Britain.

The interests and learning experience of students should be widened by broadening the "A" level curriculum. This in turn would mean spending longer at university subjects.

The university course in engineering should last four years. This would enable students to reach the required standard in specialist subjects that would put them at level more comparable with those trained in many European countries.

All engineering students, both graduate and non-graduate, ought to spend a year in industry before going to college. With a four-year course should be used to take students nearer to the real world of engineering problems.

The authors also argue that a new and practical and vocational, course and qualifications should be introduced into Britain similar to

the Ing. Grad. with a compulsory requirement of one year's industry prior to admission. He said that it is essential to get that the right kind of people into the engineering profession, and that the most able people fill them.

As far as engineers' employment possibilities are concerned, the responsibility should be given to young engineers; there should be a career ladder for engineers; and the most able people should be improved.

"Because we believe a first class industry is vital to the economic survival of Britain, we recommend strong measures to raise the status of industry generally in the eyes of society. We believe this will tend to raise the status of engineering as an occupational group and as a desirable effect on occupational recruitment and ultimately on the economy of the country," they say.

There is, in the two societies, a different attitude to efficiency in Britain. It tends to be regarded as something best left to others (the Germans) to do, and sometimes it is treated almost as a dirty word.

"Being efficient, or more particularly, being seen to be efficient, is not part of the British culture style. In Germany efficiency is regarded as a virtue. This is a serious matter, even by the standards of the top quality engineers in management British industry and Britain will not survive."

We would argue simply that such an attitude were accepted in British industry and the public it would be bound to place more value on the part played by engineers in the running of the country. Without top quality engineers in management British industry and Britain will not survive."

Simon Midgett



## Glorious job prospects in land of rising sun

Japanese universities have until recently tended to be rather inaccessible to European visitors because of their distance and the barriers set up by language and culture. When I visited 22 university placement offices last summer, I felt I was the first in the field to show an interest in what may be termed the vocational consequences of being a university student in Japan. There really are some startling differences between our two countries in attitudes towards education and employment.

At Tokyo University, the apex of the Japanese higher education pyramid, they do not have to exert themselves to market their graduates. Any Tokyo graduate who wants to enter an interesting, secure, well-paid employment of his own choice. They really have no exact counterpart in Britain, resembling more the graduates of the French *Grandes Ecoles* in their attractiveness to potential employers.

So much prestige do the top Japanese universities confer that gaining admittance is more important than subsequent performance. The other older state universities (the national system now providing only about 20 per cent of the total output of graduates in any one year) are in a similarly enviable position. Tokyo Technical University had 240 engineering and science graduates entering employment, for whose abilities 2,400 employers were competing; and Kyoto divides with Tokyo the privilege of providing successful candidates for the top government jobs.

On the other hand there was no complicity in private universities, go-getting examples of private academic enterprise based on the American model. Even the top ranking colleges like Keio and Waseda, and the Jesuit Sophia University show a lively recognition of the connection between healthy enrolment figures and good jobs. Some of the lower ranking colleges had stepped up their public relations efforts to almost desperate lengths, dispatching teams of professors and placement office staff on marketing exercises during the vacation to employers and parents all over Japan.

The private institutes were much better provided with facilities although many universities in Tokyo were notoriously over-crowded. Chuo founded as "The English Law School" with about 7,000 students annually had to put up with one large room in which all their careers staff conducted their work, including individual interviews with students in three cubicles. However, they are planning to move out soon to a new campus in the country.

But despite these cramped conditions student enrolment in metropolitan universities is not a problem since the mere fact of being a graduate from a college in the Tokyo area helps to get a job, and I was told that only about 10 per cent of the 423 universities providing four year courses have difficulty in attracting students. It is likely they are the smaller provincial colleges with less than 1,000 students.

Japanese universities, apart from being much more numerous, span a much wider size range than our own, with a tail of smaller universities at the other end and 41, accounting for about half the output of graduates, have an enrolment of 10,000 or more with one huge university of 80,000 students.

So many institutions of higher education, nearly 1,000 if those offering two year degree courses are included, must inevitably vary in quality. Some are indeed jokingly referred to as *akiba* or *daigaku* or *in*. The poorer ones are overcrowded, producing rather meagre intellectual fare in the traditional Japanese disciplines of law, economics and commerce and the standards demanded are not very high, since no formal proof of satisfactory completion of studies are demanded, and students may take up to eight years to graduate.

Science education is rudimentary if not entirely absent in them and they have tiny postgraduate enrolments proportionate to their size. By contrast, the national universities have highly qualified staff, good staff-student ratios and good laboratory and other facilities. On average the quality of British universities is certainly higher, but the Japanese have so far made expansion of numbers a priority.

Quality at the top end of the spectrum is ensured by the simple device of subjecting the universities to a process of natural selection, by which the weakest go under. A place in this pecking order is determined partly by the institution's history and partly by the difficulty of its admission exams. These are meticulously analysed annually and the results published so that each institution knows how it stands in regard to the others.

In any case the quality of education matters rather little, first, because students are assessed publicly in finals (although elaborate records are kept of academic performance); second, because what really matters is the standing of the whole institution rather than that of any individual department; and finally, because universities are not really meant to do, in Professor R. P. Dore's words "as an enormously elaborated, highly expensive, highly testing system with some educational spin-off".

The grading function, for the benefit of employers (or the state) appears to be paramount. The university hierarchy and the parallel ranking of employers appear to have been designed primarily as devices for the assessment of potential recruits for industry and government.

Behind the recruitment process lies a vast "old boy" network of connections between companies and universities, and a brand of elitism is frankly practised. First class companies will only recruit from first class universities. Recently, restrictive practices of this kind have come in for increasing criticism from the press, who claim that the lesser universities should have the opportunity to put forward good candidates for good jobs, and Tokyo University is regularly attacked for cornering the good jobs, but such is the conservatism of the system that reform appears to be difficult.

A leading trading company that I visited told me with pride that they had taken 50 graduates that year from one top private university (Keio) alone! Similarly, Waseda, which is large and powerful, appears to get large numbers of its graduates into the press, and media. The use of connections is practised on such a large scale, and so systematically, that our own parallels with say Oxbridge recruitment into the Civil Service look modest by comparison.

Another force for conservatism is the widespread custom among Japanese employers, of appointing a graduate for life at the age of 21. So the final year student's round of interviews may be his first as well as his last. There is little mobility among experienced people. One consequence is that firms train their own personnel very carefully, since an employee will be with them until retirement. Another is that the student job-seeker will place a high value on a company's financial stability, since it could be a personal tragedy to lose a job, say in middle age, through a company's financial failure.

Japanese students, like our own, regard selling as a second-choice occupation but that career is additionally perilous for them because of the inherent insecurity of the job where earnings are related directly to performance.

Japanese higher education is impressive. Rationally designed, and indeed much more modern than our own since it was completely reshaped just after the last war, it represents the logical development of efforts to provide the state with skilled manpower, graded in quality and guaranteed as to ability and motivation.

The implications of such a system when nearly half the population entering employment will have degrees (predicted for 1985) are staggering, for Japan will then be producing the most highly educated workforce in the world. And unlike ourselves there is every indication that the Japanese will be able to use them effectively, for their universities have a much better reputation among employers generally than ours.

I. H. F. Kerr

The author is head of the occupational advisory service, University of Sussex.

## Keeping the wheels turning

P. J. Thompson examines the case for degrees in plant engineering

A proposal for a new degree course in plant engineering with terotechnology is producing much discussion. Some believe that a career in plant engineering is best served by a first degree in mechanical engineering and specialised post graduate courses. Others, including the department of mechanical and production engineering at Trent Polytechnic, hold that this branch of engineering is as distinctive as those in production, electrical and civil engineering, and is sufficiently in demand that a specialised first degree is long overdue, a view shared by many in industry. This discussion again emphasises the need for the Flinston inquiry into the Engineering Profession.

In the past most plant engineers started their careers as ordinary engineering apprentices and were educated by part-time study, often acquiring a higher industrial certificate in mechanical engineering plus endorsements to meet institution requirements. As career opportunities arose these engineers specialised in plant engineering through experience gained on the job.

However, as the Flinston Society submission to the Flinston committee emphasises, this type of career development no longer exists due to changes in the requirements of the engineering institutions and in the activities of the "craft" trade unions. The only route now is via university or polytechnic degree programmes.

But which is the most suitable degree course for the education of plant engineers? It is my view that this can only be answered by a detailed analysis of the plant engineering function.

The Institution of Plant Engineers states that the function of a plant engineer is the management control of the mechanisms and services of production, and that the plant engineer will therefore have received the education and training necessary to exercise all or part of the following management functions: The design of plant and services to ensure optimum operating

efficiency and the reduction of maintenance; installation and commissioning of plant and services; maintenance of fixed and mobile plant, of works services, of building and safety accessories; control of the operation of fixed and mobile plant and all ancillary equipment from safety, energy conservation, pollution control and general environmental considerations; in collaboration with the production function, the selection and procurement of plant and equipment; selection and control of equipment, tools and consumable stores necessary for the efficient maintenance of plant, services and buildings; design of cost, budgetary and progress systems; control and supervision of staff and operatives; to supervise the training and education of potential plant engineers, staff and operatives.

One of the main tasks is to plan essential for any planned maintenance scheme to keep up-to-date and readily available records of the maintenance work done on each item of plant, particularly using computer records. Clearly to be effective in this work needs a background in computer systems, statistics and reliability engineering.

In 1970 the Government, through the Ministry of Technology, greatly assisted the development of plant engineering when it set up a working party on maintenance engineering. In the report of the working party the main facts which emerged were:

● Direct costs of maintenance engineering in British manufacturing industry were then £1,000m per annum.

● Maintenance staff productivity could be raised by 60 per cent,

giving a reduction in costs of £500m.

● Inadequate maintenance of production in at least 20 per cent of firms, resulting in loss of productivity; possible savings £200m to £300m.

● Education and training deficiencies for maintenance engineers existed at technician level.

It was appreciated at the time that maintenance could be no longer a "dirty" job, but that proper attention was paid to the sign of plant and equipment. This work has since been covered by the Committee on Terotechnology originally established by the Department of Trade and Industries.

Terotechnology brings together practices which in combination make a major contribution towards ensuring that the "permanent sources" of a company—its hardware—are provided, cared for, eventually disposed of in an optimum way. This involves bringing together existing knowledge in many areas. The broad objectives of education and training in terotechnology are:

● To develop the ability to materials and human resources ways that will optimize the owning plant, machinery, buildings and structures.

● To facilitate and ensure feedback of knowledge and experience already gained to those responsible for design, manufacture, operation and maintenance.

● To encourage and develop use of methods of measuring costs features in the operation of machines, equipment, plant and buildings.

● To develop ability in the analysis of such measurements and in tracing the information which should be fed back to design, manufacture, operation and other functions within the organization.

In a degree programme it is essential that it must be specifically designed for its inclusion. A modification of a separate study-terotechnology would not be sufficient.

To assess whether a first degree in mechanical engineering is a complete foundation for a plant engineering career its content must be compared with the requirements. All degree programmes in mechanical engineering provide a thorough grounding in engineering sciences and the application to either design or research and development. It is generally agreed that if such programmes are taken as a preliminary to a career in plant engineering there are shortfalls which must either be learnt by experience or via a post graduate programme of study.

The main shortfalls include building technology, building services, environmental control, industrial safety, organizational studies, costing, accountancy and terotechnology. Such studies are not those usually associated with an engineering postgraduate programme leading to a higher award and to a professional status. They are taken as a preliminary to a career in plant engineering there are shortfalls which must either be learnt by experience or via a post graduate programme of study.

In assessing the justification for a new engineering degree discipline it is necessary to be able to identify a satisfactory career development to full professional status. In the early part of a career in plant engineering experience in maintenance planning, servicing, commissioning, cost and budgetary control, supervision of plant services and a plant layout and design office would provide adequate career development activities, for which the proposed degree programme provides a suitable educational foundation.

The progress of degree proposals in plant engineering is being closely monitored by the Institution of Plant Engineers who are mindful that their future membership will depend to a significant extent on such programmes. It is clearly their view that a specialized degree programme in plant engineering is a much needed development.

The author is head of the department of mechanical and production engineering, Trent Polytechnic.

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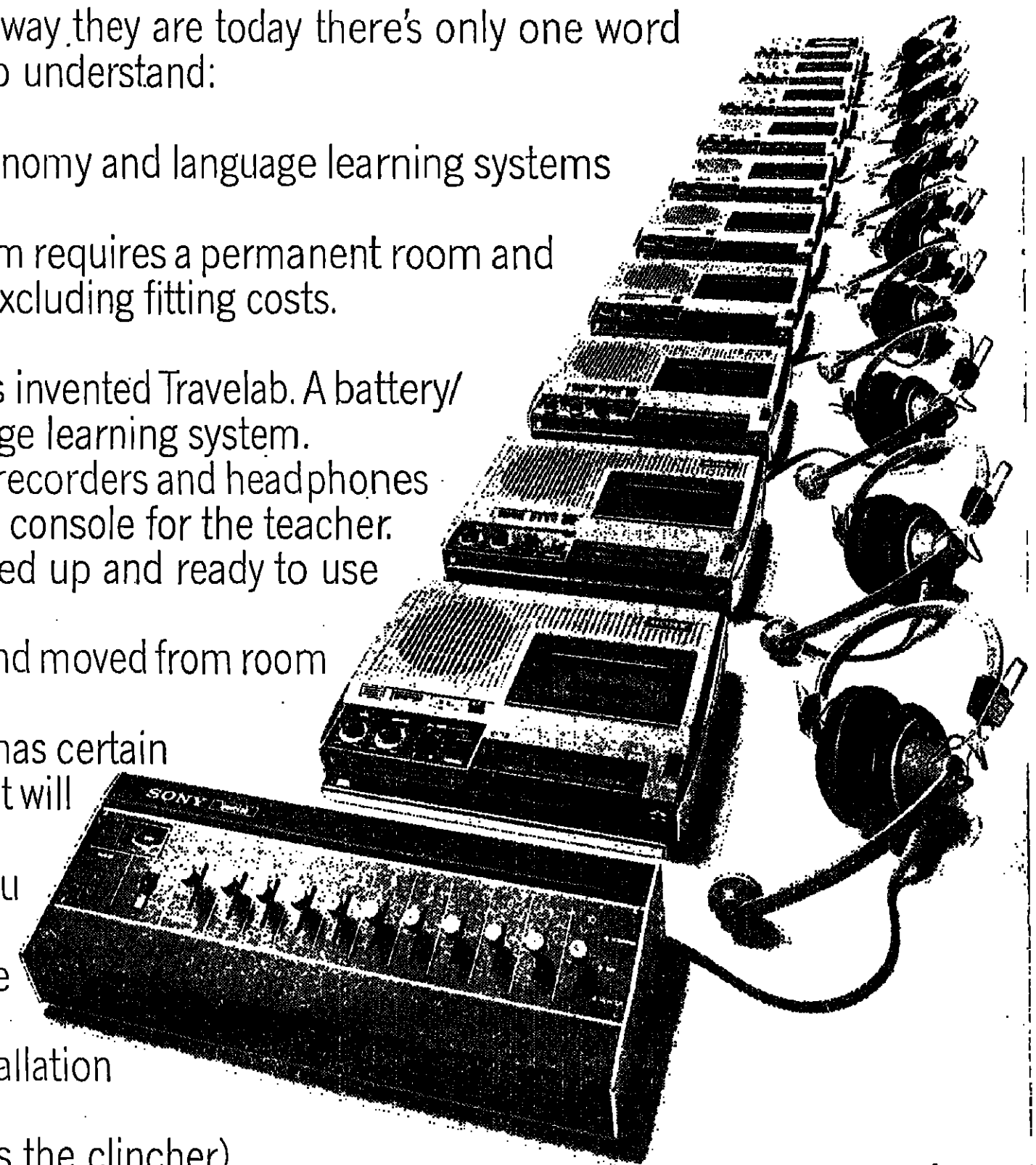
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# LETTERS TO THE EDITOR

## University versus polytechnic pay

London nonsense

## Last chance on salaries

The moment of truth is rapidly approaching for the Association of University Teachers. The point has almost been reached at which either a salary increase limited to 10 per cent must be accepted or else militant action taken to force the Government to think again.

Indeed, even this stark alternative probably overstates the freedom of manoeuvre left to the AUT. Even if all its members who theoretically supported a militant course it seems unlikely that the most disruptive action which the AUT could command would be enough to shake the Government's determination to stick to its 10 per cent policy. There is simply no hope that university teachers can win where firemen have lost, and where even miners and power workers cannot be sure of victory.

All this has been obvious for some time. It became so soon after the day of action last November when the Government did not give in straight away to the firemen. Certainly by the time of the AUT council meeting at Heriot-Watt just before Christmas there was very little room to doubt that once again through no fault of their own—the AUT had misused its bus.

Then was probably the time to settle, when the invigorating memory of the day of action was still reasonably fresh. The anomaly could have been preserved intact for use at a better time and the 10 per cent could have been taken entirely as a cost-of-living increase.

University teachers then would have gained the highest possible threshold consistent with their in-constraints of income. The anomaly could later have been calculated, while the anomaly itself would not have been whittled away in the process.

With the benefit of hindsight it is difficult not to conclude that the AUT would have done better to

Sir,—Ernest Rudd (*THE TIMES* February 3) himself complains of too facile comparisons between university and polytechnic salaries whilst being quite happy to compound the over-facility himself with comments on the comparison of academic qualifications which include the startling phrase "roughly at least the level of a good PhD". I had always suspected that some PhD's might be better than others—or others? Are university staffs so naive or so arrogant as to believe that "intellectual quality" can be measured solely by qualifications or that it is all that matters for a teacher?

I try to avoid being too deeply drawn into the endless and endlessly repetitive parade of half truths and untruths. Some stray thoughts? If the grass is so green and lush on the polytechnic side of the great divide why are not our colleagues rushing to force us the polytechnic thickheads, out of jobs by dursing our employers with their brilliant? They could try to do so by applying for senior posts in our sector. They do not do so very often. If they did, it could be that their lack of professional and teaching qualifications, professional experience and contacts would fail to be attractive to polytechnic employers. The point is that we are not being over-burdened with applicants from the university sector poverty stricken though we are told it is. I wonder why?

What is most disturbing in the debate is the evidence in the Association of University Teachers' facts that its case for a better pay deal can best be fought by attempting to see such pull others down. It is sad that industrial trades union tactics, arising in a profession which used to be and thinks of its members as scholars and gentlemen, should be used in this way.

Could I commend to Mr Rudd the Association of Polytechnic Teachers' pay policy document, which does seem to me at least to offer reason

and restraint even to the extent of acknowledging the merit of the AUT case. The all-purpose sneers of the AUT may back-fire on them. I am beginning to hope so. I am neither scholar nor gentleman. The Government must surely be delighted to see us tearing each other's cases apart for them.

Finally, if, as Mr Rudd claims, research masters students are being supervised by universities by persons paid half or less than a polytechnic principal lecturer (maximum £8,070) this implies that our standards are rising their academic standards to the very young and very inexperienced. Maybe that is vertiginous "good" as a qualifier to describe an academic designation which is normally meant to be regarded as a specific yardstick of high and uniform quality?

Yours sincerely,  
DONALD DAVINSON,  
Head of School of Librarianship,  
Leeds Polytechnic.

Sir,—It was encouraging to read that Ernest Rudd and his colleagues "are glad to do our bit towards raising the academic level of the polytechnics".

However, if he has ever thought of joining the staff of a polytechnic and working from within to raise standards? Surely his contribution would be much greater as a participant than it can ever be as a spectator on the sidelines (albeit one who retrieves the occasional stray ball).

And just think, Mr Rudd, you would have the added bonus of those vastly superior terms and conditions of employment which members of your association have commented on so frequently of late.

Yours sincerely,  
K. M. OLIPHANT,  
(head of the accounting academic group),  
MARGARET OLIPHANT,  
(business studies academic group),  
Hullfield Polytechnic.

## Deeper N&F levels

Sir,—In responding to Professor Burge's comments on N and F levels (*THE TIMES* January 20) I am taking issue not so much with his argument in itself—indeed, it raises points that demand consideration in higher education that his letter evidences.

He tells of the "volume" of physical science taught, and of a half and three-quarters of an A level; and in discussing curriculum has been a strong tendency to think in quantitative terms, of syllabus content. But this is only one form of definition. I would go a long way in trading mere content for a proper understanding of

basic concepts, and for a unity that integrates literally across a complete syllabus. This is an approach to defining curriculum that uses the idea of effect on the student rather than that of amount covered.

I saw the development of N and F within my own subject and also the initial drafts of some other subject groups; it seemed to me that they had the beginnings of a refreshingly different approach to syllabus construction. If higher education persists in a preoccupation with content alone, it is precluded to itself as well as to secondary education and the professions.

Yours faithfully,  
M. T. DEERE,  
Vice-principal,  
South East London College.

## Social security payments

Sir,—In the past weeks we have had a number of inquiries from students who were refused supplementary benefit during the Christmas vacation. Some were pursuing a course at first degree level for the second time. It is clearly the case that they fall outside the scope of the Social Security (Miscellaneous Provisions) Act since in each case the student concerned is without a grant.

Fees are staggeringly high this year and students who have to find their own money for their own maintenance during term time have a considerable financial burden to shoulder. If they are unable to find supplementary benefit it is their last but very necessary resource.

We would like to bring this matter to the attention of Mr Orme, Minister of State for the Social Security, the Supplementary Benefit Commissions.

Yours faithfully,  
JIM MURRAY,  
research officer,  
KEITH LESLIE,  
senior president,  
Edinburgh University Students' Association.

## Better student unions

Sir,—The answer to increased student representation is not to replace the power of general meetings with the paper democracy of student representative councils, as Mr Wilks and the Federation of Conservative Students suggest (*THE TIMES*, February 3).

I am surprised that he endorses such a proposal, especially when he reflects on student union council at Leicester University, where he was president. Although elected by secret ballot in many cases the producing a motley bunch of political lightweight—by no means a true reflection of the membership.

Mr Wilks and myself tried hard to increase attendance at general meetings, with some success. They were well publicized, the issues were made clear and the notion of a balanced order paper introduced, with relevant issues high on the agenda. These ideas together with persuading the authorities to set aside free time for such meetings, are the prerequisites for high attendance.

Yours faithfully,  
JEFF SHEAR,  
formerly sabbatical officer,  
Leicester University Student Union.

## Social work staffing

At first glance the dispute between Middlesex Polytechnic and the Central Council for Education and Training in Social Work is a simple one. The council broadly supports the contention of staff and students at the polytechnic that new appointments are urgently needed to restore staffing levels on the polytechnic's three levels of courses. The director, on the other hand, maintains that the polytechnic's financial woes prevent him from responding to these requests.

But the dispute also raises the thorny question of how viable it is to run polytechnics within the complex matrix of educational and financial constraints imposed on them by outside bodies. In the Middlesex case, the polytechnic must have regard both to the legitimate educational views of the CCTSW as the relevant validating body and to the financial controls expressed through the maintaining local authorities and the pooling committee.

In these circumstances polytechnic directors are forced willy nilly to assume the role of arbiters. They are confronted on the financial side by two sets of constraints. One is the national staffing norms recommended by the local authorities'

pooling committee; the other is the specific financial predicament of the polytechnic, reflected in its local budget.

Much has been made in the Middlesex dispute of the fact that the pooling committee's staffing norms are based on a different calculation from that used by the CCTSW. The council insists on one social work tutor for every 10 students while the pooling committee takes into account staff who contribute to a course whether they are social work tutors or not. It is the second financial constraint—the specific predicament of the polytechnic—that is therefore more crucial. If a polytechnic does not have enough money to appoint new staff unhappy decisions avoid. But those decisions ought not to be the domain of the director alone.

They require within the institutional and financial considerations reflected outside by the pooling committee and the validating bodies. This means that academic boards governing bodies should speak to their directors about the pattern of course provision with equal authority.

## Towards credit transfer

The news that at last some serious work is to be done on whether a national credit transfer scheme is feasible is very welcome. Few reforms could do more to help higher education to new groups in the community while allowing its own institutions to pursue their chosen paths with the minimum of political or bureaucratic interference.

The increase in student demand that such a scheme is likely to stimulate may also be welcome in the middle 1980s when the spectre of demographic decline acquires more substance.

However, there is still an impression that this suggestion is not being taken seriously. It is not.

approached with sufficient urgency or vigour. As so often in Britain before the horse, hoping that it will talk long enough about the decision in principle will some how emerge.

What is needed is not a feasibility study but a substantial and public commitment by the Government, the universities, the Council, the polytechnics and the others involved to the creation of a national transfer service. Sadly for too many in higher education, with the honourable exceptions of the CNA and the Open University, credit transfer still seems to be a technical exercise and a peripheral issue. It is not.

# The many inconsistencies in life of Sir Thomas More

This week is the 500th anniversary of More's birth. Denys Hay offers a quincennial reassessment

humanity of action. It was a point; but the book added a new genre to world literature, a new category to political speculation. Other contradictions there are in plenty. Many as Spenser, the Commons (1523), up to every penny monetary trick, clean and fairly corrupt, which the king's manager of parliament had to resort to. Then there is the gentle humanitarian persecuting heretics, maintaining in very brutal fashion the active side of his theoretical attack on Luther which he had published anonymously in 1523 the probably also helped Henry with the famous defence of Catholicism, the *Assertio septem Sacramentorum* of 1521, of the Faith.

Perhaps the final enigma lies in the exact nature of the cause for which More was executed. In simple terms it was a refusal to take the Oath of Supremacy, enacted in the Act of Succession in 1534, and a refusal also to fall into any of the pits of disloyalty due by the crawling creatures of the king, organized by Cromwell, that thing is certain. It is not the case that More's attitude and execution (6 July, 1535) was in any meaningful sense a demonstration of obedience to the pope as such.

In his last letter, written in the Tower, he insists that he has always regarded a General Council as the supreme authority in the Church, and not the pope. He died as a gesture to preserve the "common corpus of Christendom". We may doubt exactly what he meant by this. But there cannot be any doubt that he rightly anticipated a world in which Christianity was collapsing into a score, perhaps hundreds, of rival churches.

Did he forget that already the Franciscans had evolved four orders? That the friars of all persuasions were fighting each other tooth and nail? That there were Waldensians still and now Hussites? Was there still a "com-



# The plastic heron conundrum and art for the many

Roy Shaw explains the difficulties in bringing the arts to adult learners

Adult education and arts organizations are both concerned with the problem of the few and the many. Their job is to make what was confined to a few people, the arts, available to as many as possible. In doing this, they immediately come up against the problem of the diversity of levels of ability and interest which exist in the adult public. Many an adult class contains both graduates and people who left school at the minimum school-leaving age, and even adult tutor is skilled in serving the needs of both groups.

In the arts, however, some argue for accepting the diversity of taste which exists. This has been most sharply expressed by Marghanita Laski, who once condemned the expenditure of public money on subsidizing the arts in these plausible terms: "Many people are not happy to make happy not by high art... but by pop art; not by Bach but by Beatles; not by ballet but by dance halls; not by Henry Moore but by plastic herons brooding over garden pools." The same point is made more succinctly by an arts administrator reporting on mobile provision in rural communities: "It was noted that 'high art' was not relevant to most of the population."

If he had said "Immediately relevant", many adult educators would agree with him; but their experience is that so-called high art can, through education, be made accessible to people who did not spontaneously respond to it. The response to Miss Laski's argument has to be more complex. She is opposing pop art and high art, but in the experience of many of us both may be enjoyed by the same person.

It is true that some are confined by the poverty of their educational and cultural background to enjoyment merely of pop art. They are missing as much as the High Court judge or the distinguished academic who has either never heard of the Beatles or considers them suitable fare for the lower orders only.

On the other hand, I cannot believe that most herons do anything for anybody and to argue that people should be left in the state of aesthetic poverty where they would prefer these to Henry Moore, seems to me like a form of cultural snobbery.

Those who in adult education and the arts who concentrate on "relevance" are in danger of slipping into the "Don't teach my boy poetry..." position. Last year I saw a play written and performed specially for miners and other workers. One working man declined to watch it and when asked why said: "What do I want with a play about miners? I'm a bloody railway man." This suggests to me the *reductio ad absurdum* of the relevance argument: special

plays for shop assistants, dentists, etc. etc. Of course, I would agree that both in the arts and education you have to begin where people are, but where you end up may be a very different place.

Another common problem for both adult educators and arts providers is the reaction against the role of effort by the "consumer". Over a century ago, John Henry Newman was attacking the idea that "all learning is to be without labour". He was right. The arts and education are probably stronger now than when he attacked it. In the arts, the equivalent attitude is the "the arts are fun" approach. This is a dangerous half-truth, whose other half is "the arts are effort" and the effort is the basis of greater enjoyment rather than fun.

A problem in the arts area which could raise problems for the integration of arts provision and adult education is the opposing of appreciation and creation. In most adult education courses on the arts, the emphasis is on appreciation of what some arts people call the heritage arts, which they commend unfavourably with involving people in creative work in the arts. This approach is supported by a recent Schools Council working paper on *Arts and the Adolescent*, which is based on the hypothesis that the arts offer education of the feelings by offering a process rather than a product, hence music education should be music-making.

The argument is reinforced by the assertion that appreciation is a passive activity whereas participation is an active one. The contrast is succinctly emphasized in the statement by a community artist quoted with approval in the Redcliffe-Maud Report: "Hanging a picture on a wall and inviting people to come and look at it is the easiest possible thing to do. We are trying to do something much harder: to tap the creativity in everyone."

Adult education has for many years accepted a duty not simply to provide what is asked for, but stimulate demand. I began my own career in adult education as an organizing tutor for the WEA, and as such I did a great deal of what is now called in the arts world *animation*. The word came from France and has nothing to do with Walt Disney, rather it signifies a process by which individuals and communities are activated and animated. Those who do this are called *animators*, a word which had better take into the English language with as good grace as possible, since we have no equivalent for it. Promoters in adult education and the arts have a great deal to learn from each other, especially those involved on the front-line in both areas:

those who work in community adult education and in community arts.

Mysteriously, few people seem to have been aware, even in the Arts Council itself, that the Arts Council has an educational task prescribed by its Charter. It is charged "to develop and improve the knowledge, understanding and practice of the arts". Fewer are perhaps aware that the 1972 Local Government Act creates these very words to describe a role which local authorities may play in the arts. So the Arts Council, the local authorities and adult education organizations are in some respects co-workers in a common task. Those local authorities which combine an arts and an adult educational role are in an enviable position to ensure collaboration between these complementary activities.

The Arts Council's charter does not mean that it should become a huge national organization for the direct provision of arts education. Its Charter also says that it should cooperate with other bodies to achieve its main aims. This means that the Arts Council, and by implication the regional arts associations, should liaise with adult education organizations to achieve the twin purposes of diffusing the arts throughout the country and developing the knowledge and understanding of them.

The Arts Council's special expertise, based on over 30 years experience, is in funding the arts and distributing them throughout the country. It needs the expertise of the adult educator, who derives from a tradition over a century old, to fulfil its duty to make the arts truly accessible.

Finally, let me mention two kinds of institution which, while maintaining their distinctive roles, should become more and more like one another: arts centres and adult education centres. My impression is that adult education centres have ventured more into arts provision than arts centres have ventured into adult education—except in the important area of craft. Redcliffe-Maud reported that there were few channels for regular communication between people working in the arts and those working in adult education. I would like to see joint working groups in every region. Working groups, rather than standing committees, since both the arts and adult education have, in all conscience, enough committees. These groups should be complemented by close liaison between the partners to be carried out by individuals on both sides.

The author is Secretary-General of the Arts Council



## Knowledge and the mind's all-seeing eye

The Self and Its Brain  
by Karl Popper and John Eccles  
Springer International, £9.00  
ISBN 0 387 08307

This unusual book is a collaboration by two remarkably gifted men, with each encapsulating a life-time of thought. So the prior reviewer has to judge the results of a century of cogitation by two thinkers, acknowledged by the highest honours—the philosopher Sir Karl Popper and the neurophysiologist Sir John Eccles—on questions most of us do not begin to know how to ask, let alone answer. This suggests the first Great Thought: perhaps well formulated questions are very close to being answers. Perhaps the principal role of philosophers is to formulate questions so that scientists can perform the final coup de grace by winning critical experimental games against Nature.

According to Popper the scientist can only win by losing. That is, he can only gain knowledge by refuting (or disconfirming) his hypotheses, and never by confirming them. Popper has also been rejected (Objective Knowledge, 1972) the gaining of knowledge by induction from instances, which has startling implications for how we should think about learning, in animals and men. He also denies that hypotheses can be predicted, or the probability of their truth guessed prior to testing. He also holds that there are infinitely many conceivable hypotheses to select from (so it is not entirely clear how refuting them, one by one, can gain us knowledge).

From all this it is obvious that Popper does far more than ask questions: he produces answers of unusual interest. He is celebrated for telling scientists how they should carry out their experiments, and he also has powerful suggestions on how to think about history, society, and as we see here—the mind.

Sir John Eccles is highly distinguished for his work on what are the titles of two of his books: *Reflux Activity of the Spinal Cord* (1932) and *The Physiology of Synapses* (1964). He has also written *Neurophysiological Basis of Mind* (1953). He ends his scientific neurological books with the philosophical notion that the synapses (the switches of the nervous system) are somehow controlled by superhuman forces and intentions, somewhat as though God plays upon the keyboard of us, His instrument. This is a view which is not altogether accepted by other neurologists.

The title, *The Self and Its Brain*, perhaps suggests such a dualism. The reader is not disappointed. The conclusion is that there is brain and there is mind, and there is a weak interaction between the

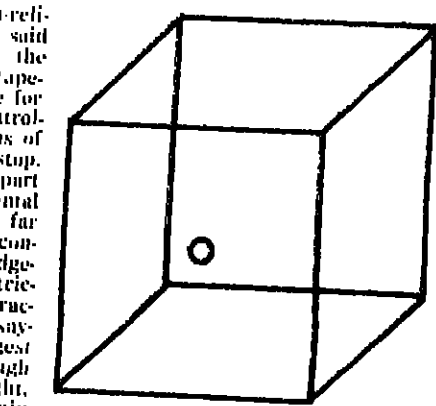
two. Popper is avowedly non-religious, while Eccles as we have said takes the other view; but in the final sections, which are tape-recorded discussions, they settle for mind rather than God as controlling us, though the mechanisms of the reasoning advanced are in part traditional, and in part experimental observation (and here I am far from sure that Popper is being consistent with his own knowledge-only-by-hypothesis-refutation strategy). They support weak interaction mind-brain parallelism, by saying that first this is the longest standing belief of mankind through the history of recorded thought, second, that there are certain experiences which demonstrate it. Let us turn to these.

The Canadian brain surgeon Wilder Penfield carried out what are justly highly celebrated experiments, in which small regions of the surface of the brains of human patients were stimulated with fine wires (electrodes), while they were undergoing surgery for epileptic problems and were asked to report their experiences. What happened depended of course on where the electrode was placed; but pain was never elicited. The experiences which interest Popper and Eccles are the sequences of memories evoked by the stimulation, while at the same time the patient was aware that he was in the operating theatre having his brain stimulated.

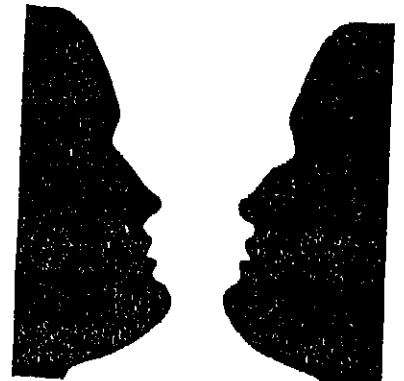
It is this double experience which is accepted as evidence of mind-brain dualism. A further example can very easily be tried out by the reader. It concerns optical illusions. If we look at a drawing of a skeleton cube (shown in the trade as a Necker cube) will frequently reverse in apparent depth, so that one moment a given face seems to be in front, and then suddenly it flips in front, and then the back face of the cube becomes the front face. (I discuss this at length in a book called *The Intelligent Eye*, 1970). Now by concentrating hard, one may seem to be able to prevent the cube reversing, or one may make it flip. This certainly tends to happen with eye movements, or blinks, and possibly there is indeed some "control" which is what is relevant here. Now they argue, here mind is controlling the brain, generally in unity and make sense of experience.

It is also suggested that the Penfield experiment is important as evidence that man has consciousness, but I assume that this is a slip: for why these reports rather than any others, such as wine tasting, this (or any other) evidence from experience, or reported experience, gives evidence of their thesis. This science, and how we see philosophy use us back to how we see us related to science.

The particular science of relevance here is psychology, and in particular the science of visual perception. Can this tell us about relationships between mind and brain; or



Ways of seeing: the Necker cube (above) alternates in depth. The face marked by the small circle sometimes appearing as the front and sometimes the back face. By concentrating hard one may make the cube reverse—or prevent it. The figure below alternates spontaneously: sometimes it is seen as a white area bounded by meaningless black areas. (Both figures are from the third revised edition of *Eye and Brain* by R. L. Gregory, Weidenfeld and Nicolson, £4.50).



whether the "identity" Theory—mind and physical brain activity are the same thing, but described in different terms (physical and mental terms) so that we are misled into thinking of them as different? Many visual psychologists and physiologists leave this to the philosophers. Few, if any would wish to draw such conclusions from their observations or experimental results. Perhaps similarly, few physicists are prepared to say that their experiments reveal the ultimate nature of matter.

The trouble seems to be that, in both cases, we lack a sufficiently making inferences across what look like (presumably just because we lack adequate conceptual schemes)

## Instability at sea and on dry land

Catastrophe Theory: Selected Papers, 1972-1977  
by E. C. Zeeman  
Addison-Wesley, \$26.50 and \$14.50  
ISBN 0 201 05014 7 and 0 09015 5

The present state of catastrophe theory (CT) may be likened to that of the theory of boundary-value problems at an early stage—in the sense that the primary activity involves specifying phenomena for which the elementary catastrophes (behavioural forms of discontinuous behaviour) provide models. The existence and uniqueness theorems for partial differential equations have a counterpart in Thom's basic classification theorem, which describes the seven possible elementary catastrophes for systems having a control space of dimension at most four, and which characterizes these seven modes of discontinuity in terms of potential functions and their stationary values.

Thom himself is very cautious about the predictive value of CT, whereas Zeeman is active in applying

ing the theory to diverse scientific problems. This has led to a debate status of CT is examined. The appearance of this selection of Zeeman's papers (including some joint original debate).

Most of the papers are devoted to applications of the elementary logical, social and physical sciences, theory which can be used fruitfully rarely provide quantitative predictions; but it is precisely the prediction of discontinuous behaviour, of discontinuous behaviour, in systems governed by continuously varying control parameters, that the believes that, within the coming decade, CT will be found useful in modelling many phenomena which have resisted classical methods.

It should be emphasized that the practical application of CT to any specific preparation and (especially for non-physical applications) careful

experiment and interpretation. In particular, the representation of the potential may be hard to justify, and the explanation of a dynamic, of behaviour of the system to correspond to stationary (potential) values of the potential, may be another difficulty. Indeed, the resolution of such difficulties occupies the bulk of some of the non-mathematical papers. The basic ideas have never been treated mathematically before, so that considerable reorganization is necessary before even the most elementary model can be formulated.

The main mathematical paper contains a complete proof of Thom's theorem, including, as one step, a proof of the classical preparation functions of the classical preparation theorem of Weierstrass which leads to a problem in algebraic geometry. It is shown how the essential behaviour of any system defined by a potential is determined by the initial terms in the

Taylor series for the potential (rather than by the infinite "tail"). In the non-mathematical papers, the thoroughness of the studies is impressive. The explanation of the logic, and so on, is instructive, and many intricate diagrams are used in the exposition. The crucial problem in each case is to understand the morphology, and to use model and a dynamic. As one would expect, this task is most difficult in the social sciences, and the debate is most intensive. Even when no exact predictions are possible, the determination of the bifurcation is often far from easy and involves subtle arguments. The subjects treated range from the stability of ships to the instability of stock exchanges, and from brain modelling to nervous system. There are also some papers of the Thom-Zeeman debate included, with an extensive bibliography.

Many of the phenomena studied

## Across the great divide

Fair Rent and Legal Fiction  
by Piers Beirne  
Macmillan, £8.95 and £3.95  
ISBN 0 333 21508 7 and 21509 7

Nominally, this is a study of the scheme introduced by a Tory Government (the Housing Finance Act, 1972) to impose on public sector housing, the same basis of fixing rents as had been devised by an earlier Labour Government (the Rent Act, 1967, later re-enacted by the Rent Act, 1969).

The statutory guidelines, in fixing a "fair rent," pose all kinds of legal and valuation anomalies, but Piers Beirne, in his extremely short and somewhat muddled treatment of this aspect of the problem, deals with only the more obvious difficulties, and is therefore in an attempt to effect parity between the public and the private sectors. Perhaps through his failure to understand the basis of rating valuations and even basic valuation principles, the main purpose of the rent regulation machinery of the 1967 Act (the departure from the rigid formulae of the 1957 Act) eludes him; and, instead, he appears at times to be trying to find some touchstone represented by a mathematical formula based on rateable value, which will produce the answer.

This study, however, in no way purports to concentrate on the technical term "fair rent," but two Acts, but to draw some conclusions on housing rental levels in the private and public sectors, and

continues in his academic interests. The book is a study of the Parson's only extended essay in autobiography, first published in 1970, a fascinating 50-odd pages, in which his emphasis on early influences—graduate study at the London School of Economics at the time of his contacts with biology and economics—is particularly striking.

This is followed by essays on two of his teachers at the LSE, Hobhouse (who now reads Hobhouse?) and Malinowski. Parsons justly remarks that "it can be said of Hobhouse that he was a scholar of Frazer, that his anthropological work as a whole is of far higher quality than his explicit general theory." I think much the same can be said of Parsons in turn. The "investigative" sociology, as he best in his many essays (think of *Structure of Social Action*), is represented in the present book by dealing with empirical topics. And among his theoretical writings, many sociologists have considered the best that he has written, in which he discussed writers such as Weber and Durkheim whose own theories were developed through close involvement with empirical evidence. In contrast, it has long seemed to me that Parsons took to emphasize some of the main

This volume contains some of his most notable essays, published with one exception—in the last decade. It is appropriate that, as Parsons in 1978 reaches his seventy-fifth birthday and completes 50 years of scholarly publication, this volume of essays be organized and bibliographically to emphasize some of the main

Land Reform: A World Survey  
by Russell King  
Bell, £10.50  
ISBN 0 7135 1995 9

Although land reform is an unusually emotive topic for social scientists in any way concerned with rural society and the land it occupies, there are few major texts in English on the subject. Only the late Professor Warren's *Land Reform in Principle and Practice* is undisputedly a major work embracing the whole subject. Few other writers have been able adequately to capture the human interest in the long struggle against the inequality of the ownership of land which is everywhere beset by problems posed by political "solutions" such as the Alliance for Progress, a pan-American programme to promote social justice instituted by John F. Kennedy, which really sought to maintain intact the structure of society in rural areas by offering only a little to the most obviously deprived.

Russell King offers us a textbook loaded with a digest of other people's ideas and crammed with information. He surveys the major

## An inveterate theorist looking back

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## Going back to the land

Issues associated with land reform and considers the attempts at land reform in Latin America, Africa, Asia and the Middle East. Indeed the book might better be entitled *Land Reform in Less Developed Areas*, for only passing reference is made to European land reform. King has succeeded in writing what must surely be required reading for all students approaching land reform for the first time, a book which is both a manual and a bibliography. This history of land reform is further complicated in this volume by the avoidance of any analysis of socialist land reforms in Eastern Europe. If the author believes that these land reforms have no influence on policies in the Third World then it is necessary to explain this view and to show what factors did influence the development of agrarian policies elsewhere.

The treatment of existing land reforms in Latin America and Asia is excellent although largely factual and a sympathetic view of the more radical reforms adds the appreciation of the differences between countries and their approaches to similar problems. A detailed examination of the section on Latin

America cannot be other than relative and imperfect. (Parson's review of this book is included, with Bursky's response, in this collection.) Whether the pursuit of a set of Kantian eternal categories is the way to achieve this is at best doubtful. Certainly more promising routes are apparent in recent philosophy of science, where a lot has happened since Whitehead.

Unfortunately, while it would be unfair to allege that Parson's reading is generally out of date or that his intellectual position has remained entirely static, it is clear that his *Prolegomena* was settled early in his career and has tended to filter his later reading. It would be asking a lot, but it would be very interesting indeed if a scholar of Parson's great stature were able to not leaving read Anscombe and von Wright, and there is no mention of the best of precisely these topics, though much briefer and less cerebral, much more cogent.

In his book *Ideology and Social Knowledge*, H. J. Bursky argues that Parson's fundamental concern has been to defeat the ever-recurring charge that social scientific know-

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Readers expecting a great deal of detail, an exhaustive source book and a sound survey of the ideas associated with land reform will find satisfaction here. Its failures perhaps appear noticeable only because the author attempts so much and because his judgment, sustained over 400 pages, is so sound.

David Preston

David Evans















## Polytechnics continued

The following posts are currently available for application—

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To assist in the development of business studies programmes. An appropriate degree of qualification and work experience in the general field of business or management is required. An interest in multi-media learning systems would be an advantage. (Ref: S/A03114)

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To teach on degree and professional courses and who is able to contribute to this teaching at advanced level. A professional accounting qualification and a first or higher degree is desirable. (Ref: S/A03115)

Department of Business Studies

Lecturer II/Senior Lecturer in Accounting

To teach Accounting at all levels up to and including final degree. Active to contribute to this teaching at advanced level. A professional accounting qualification and a first or higher degree is desirable. (Ref: S/A03116)

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To assist in the development of the B.A. (Honours) Law degree and other multi-disciplinary courses. A special interest in Administrative Law and/or Business Law is desirable. (Ref: S/A03117)

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To teach principally undergraduate students. Applicants should hold a good honours degree in Chemical Engineering and preferably have several years of appropriate industrial experience. Encouragement and facilities are given to research and industrial collaboration. (Ref: S/A03118)

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Lecturer II/Senior Lecturer in Related Studies

To be employed to teach on Related Studies Programmes. In particular with Environmental Studies. Applicants should be graduates with an honours degree in geography or environmental studies and have relevant research and teaching experience. (Ref: S/A03119)

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To teach and research in Water Engineering. Applicants should be graduates with an honours degree in Civil Engineering and preferably possess a higher degree in the relevant field. (Ref: S/A03120)

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Lecturer II/Senior Lecturer in Pharmacology

To teach pharmacology on courses in B.Sc. Applied Biology, B.Sc. Pharmacology and HNC/ND Applied Science. A special interest in the Central Nervous System would be an advantage. Candidates should have an appropriate first degree and either relevant research, teaching or industrial experience. A higher degree is desirable. (Ref: S/A03121)

Student Services

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To have general responsibility for student matters as a whole. Candidates must have substantial experience in higher education and be aware of current trends in student affairs. (Ref: S/A03122)

Salary scales: Lecturer II, £3,279-£5,493.

Senior Lecturer, £3,947-£6,417.

Principal Lecturer, £3,947-£5,758.

Head of Department, Grade VI, £8,037-£9,813.

(Plus appropriate Government Supplement of up to a maximum of £492 and appropriate London Allowance.)

Further details and application forms from: The Senior Academic Officer, 25, North Elm Road, London E15 4JG. Tel: 01-527 2272 extension 20. Closing date: 28th February, 1978.

**NELP** North East London Polytechnic

**Senior Lecturer/ Lecturer 2 in Computing**

Research or recent industrial experience and interest in programming languages is required. Salary: Senior Lecturer £5,525-£9,900. Lecturer 2 £3,741-£5,985. Application forms and further details from the Personnel Officer, Brighton Polytechnic, Moulsecomb, Brighton BN2 4JG. Tel: 0273 693655, ext. 2537. Closing date, 26th February.

## SHEFFIELD CITY POLYTECHNIC

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Both posts are within the Department of Hotel and Catering Studies and Home Economics. They involve the application of financial control and economic principles to, respectively, the catering and food processing industries and related activities. Research in these areas is strongly encouraged.

For Post A applicants should have experience of mechanical and electronic control systems and of computer systems, analysis and programming, together with either membership of a recognised accounting institute or a degree in Business Studies with an appropriate option.

For Post B applicants should have commercial or industrial experience, a first degree in economics and, preferably, a relevant higher degree.

Requests for an application form in writing only, please, to the Personnel Department, Sheffield City Polytechnic, Hinfords House, Fittam Square, Sheffield S1 2BB, to whom completed forms should be returned by February 24, 1978. Please quote ref. THE8.

## THE POLYTECHNIC HUDDERSFIELD

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Applications are invited for the post of Research Assistant to work under an SRA Grant on Hydraulic Control Systems. The successful applicant, who should hold an honours degree or equivalent in a relevant discipline and have some experience, will be required to work on the transient characteristics of hydraulic transmission lines. The applicant will be given the opportunity to study for a higher degree.

Salary: Durham scale (Lecturer 1 point 0) £2,913 per annum including salary supplements.

Further details and application forms, which should be returned by 24 February, 1978, from the Establishment Officer, the Polytechnic, Queensgate, Huddersfield HD1 3DH (Telephone 0484 82088 Ext. 220).

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LECTURER II IN CIVIL ENGINEERING  
DEPARTMENT OF MANAGEMENT  
LECTURER II IN BUSINESS MANAGEMENT  
Applications are invited for the following posts:  
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DEPARTMENT OF CIVIL ENGINEERING AND BUILDING  
LECTURER II IN CIVIL ENGINEERING  
DEPARTMENT OF MANAGEMENT  
LECTURER II IN BUSINESS MANAGEMENT

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LECTURER II IN HOTEL AND CATERING ADMINISTRATION  
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DEPARTMENT OF CIVIL ENGINEERING AND BUILDING  
LECTURER II IN CIVIL ENGINEERING  
DEPARTMENT OF MANAGEMENT  
LECTURER II IN BUSINESS MANAGEMENT

**WOLVERHAMPTON**  
THE POLYTECHNIC  
FACULTY OF COMMUNITY STUDIES  
Applications are invited for the following posts within the Faculty of Community Studies:  
LECTURER II IN COMMUNITY STUDIES  
Applications are invited for the following posts within the Faculty of Community Studies:  
LECTURER II IN COMMUNITY STUDIES

## Awards Leges and Institutes of Biology continued

**THE WELLCOME TRUST**

**History of Medicine Fellowships**

The Wellcome Trust provides grants for the History of Medicine and maintains the Wellcome Institute for the History of Medicine in London and Cambridge, as well as the Wellcome Institute for the History of Medicine in London.

Applications are invited for research fellowships in the History of Medicine. Applicants must hold a doctorate in a relevant discipline and have a background in history, science or medicine. Applicants should enclose their curriculum vitae, to the Director in which they wish to work. The address details as follows, and letters should arrive not later than March.

The Wellcome Institute for the History of Medicine, Euston Road, London NW1 2ER.

Wellcome Unit for the History of Medicine, 100, Gower Street, London WC1E 6BT.

Wellcome Unit for the History of Medicine, 100, Gower Street, London WC1E 6BT.

If the application is accepted by the academic committee, it will then be forwarded to the Wellcome Trust for a decision on whether a fellowship should be awarded.

Applications should be sent to the Director, Wellcome Institute for the History of Medicine, Euston Road, London NW1 2ER.

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